SUPPLEMENT.

The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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No. 2124.—VOL. XLVI | LONDON, SATURDAY, MAY 6, 1876. | PRICE (WITH THE JOURNAL) SIXPENCE. PER ANNUM, BY POST, £1 4s.

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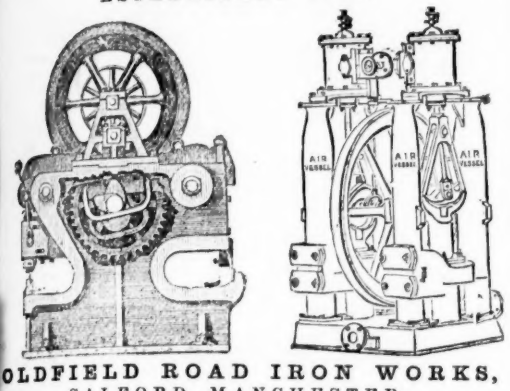

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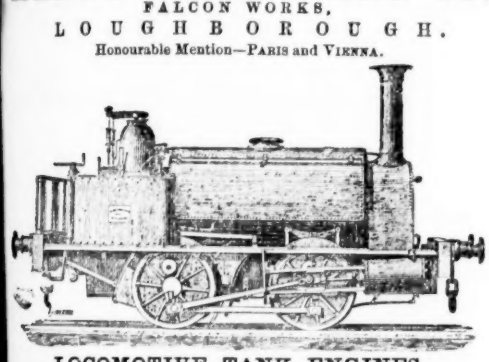

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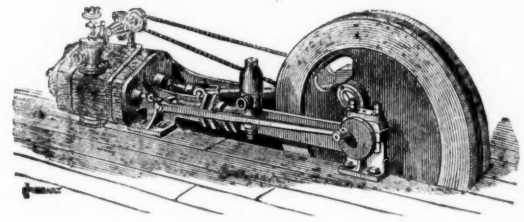

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Mr. BAINBRIDGE, C.E., of the London Company's Mines, Middleton-in-Teesdale, by Darlington, writing on the 20th March, 1876, says—"The yearly profit on our Nanthead waste heaps amounted last year to £600, besides the machinery being occupied for some months in dressing ore-stuff from the mines. Of course, if it had been wholly engaged in dressing wastes our returns would have been greater; but it is giving us every satisfaction, and bringing the waste heaps into profitable use, which would otherwise remain dormant."

Mr. T. B. STEWART, Manager of the Duke of Buccleuch's Mines, Wanlockhead, Abington, N.B., writing on 20th March, 1876, says—"I have much pleasure in stating that a full and superior set of your Ore Dressing Machinery has been at work at these mines for fully a month, and each day as the moving parts become smoother, and those in charge understand the working of the machinery better, it gives increasing satisfaction, the ore being dressed more quickly, cheaply, and satisfactorily than by any other method."

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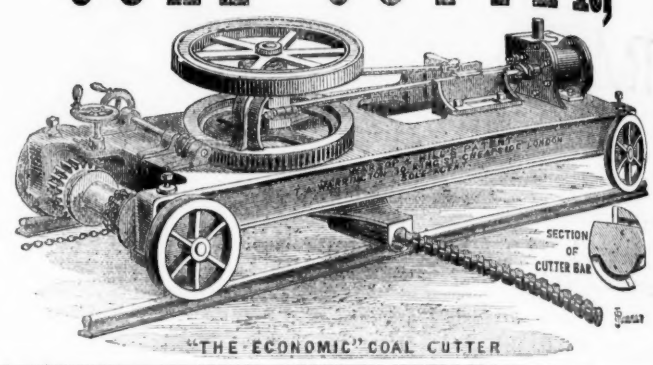

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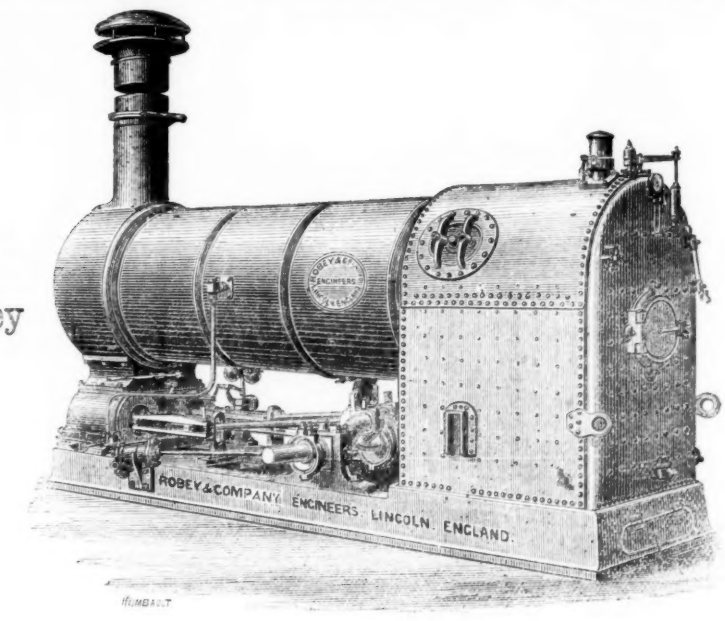

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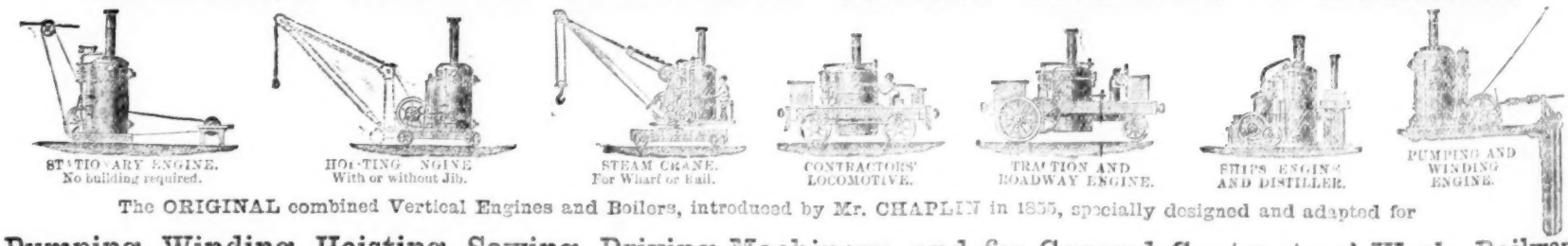

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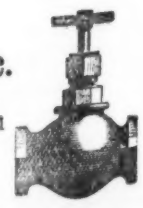
PRICES AND PARTICULARS ON APPLICATION.



Original Correspondence.

MINING IN NEW SOUTH WALES.

SIR,—All mining enterprise is still very dull with us, and the great bulk of gold got, and ores raised, is the result of private labour, there not being more than 20 companies at work, and only half of them dividend paying. The real reason of all this is that in no single instance was there sufficient capital, at first, to authorise manager or directors to open the mines in a proper way, and to enable them to go steadily forward, and in 99 cases out of 100 all the funds were spent, and the work consequently stopped, just when the worst of the dead work was done, and there really was a fair prospect of success. Our minerals are plentiful enough both in quantity and variety, but they must be *mined* for, as in all other countries where real returns have been got, and not merely scratched over and fossicked into, under the management (?) of men as ignorant really of their work as they were kept short of the funds to carry it on properly. Well-defined reefs—2 to 3 ft. thick—such as the Welcome, and known to give at least ½ oz. per ton, left standing idle for the sake of a few hundred pounds to start the battery, which would crush at least 100 tons of ore per week, at a total cost from first to last of under 8*l.* per ton, is a fair sample of our apathy; whilst as to our deep wet alluvial grounds, neither the Government nor a company have ever attempted to try their riches with a powerful pumping-engine, though, if the Victorians had such properties, they would see what was in them very quickly.

Here and there isolated private enterprise has carried out large works, and is now reaping the reward, as in Newman's Crown Flat claim, in Araluen Valley, where, by means of his underground tunnel (or rather drain), built of timber, land is kept drained which a 50-horse power engine would not have been powerful enough for, and although the shipping ranges from 12 up to 20 ft. before the wash-dirt is got, anything over 6 grains to the load is profit! In the same district there are about 2000 acres of land known to be auriferous all through, and plenty of which will go 5 dwts. to the load, and the whole of which could be ground sluiced if a good head of water were brought on to it; but because the race would be about 25 miles long and cost about 10,000*l.*, no one dares tackle it, although there is not a practical digger in the colonies who does not see clearly from the different "prospects," and the results of the labours of the few resident miners (who stack dirt in the dry weather, and wash when there is enough rain), that the first three months' washing would pay back all the capital, and the profits for years to come would put any of the much-vaunted San Francisco hydraulic mines to the blush. From about 50 acres of the same formation, but lying so that it could be sluiced by a creek, over 100,000 ozs. were taken out some 20 years ago, and had there been enough water at that level probably double the quantity would have been got, for, as it was, only the richer patches were washed.

The whole Araluen Valley itself could be made a grand ground sluicing claim, by tunnelling the lower end for a good outfall, and bringing a race of water down the head of it, it would probably cost in all 20,000*l.*, but it is no exaggeration to say that the returns would possibly be tons of fine alluvial gold within the first 18 months of full working, and there would be work for at least 20 years or more.

In the early days there were some thousands of miners in the Happy Valley (as Araluen was called), and the quantity of gold got was almost fabulous, considering the miserable appliances and the isolated patchwork way each party went at it, but after working the easiest parts, and then beginning in the richest ground in the wide flats, where it took a powerful steam pump to keep each small claim tolerably free of water, a wet season set in, a heavy flood swept away dams and buried the engines, and so disheartened the miners that most of them went away to other and newer fields, although, had they had the sense to have all clubbed together, got the storekeepers to back them for six months, and opened the valley in one great working, by which a flood would have been rather a benefit than otherwise, they would have got all the gold out from square miles of ground with less cost and more safety and certainty than they did out of square yards! Even now there are claims—stripping 70 feet deep, and employing two engines—which pay splendidly, and yet which every heavy shower of rain stops work in! whilst, if the whole valley were worked scientifically it would only help work on. The fact is, we have not yet realised what hydraulic mining means, and the few practical energetic men, like Newman, who do, have not the capital to back up their knowledge to the extent necessary in this case, but whenever this work is carried out the results will more than equal anything of the same kind in California, and at much less cost in the first instance.

In COAL there is some little activity in opening up new ground near Newcastle, and in one block near Lake Macquarie, a new seam, 14 ft. thick, of splendid coal was found 60 ft. down, whilst sinking a shaft for the main seam, which is known to lie under the whole district for 20 miles round Newcastle, and far beyond Lake Macquarie itself. This new seam makes all the land anywhere within a few miles of the Lake much more valuable, and as the Government is about to dredge the sea entrance deeper, and a pioneer screw steam collier is now being built on the Lake in readiness to open up the trade that way to Sydney, all the hitherto neglected Lake estates will probably become the most valuable in the district, as having the two markets—Sydney by sea, and Newcastle by rail—under their lee, irrespective of which the fine forests of ironbark timber will now be able to be got at, and the lucky lessees of the Crown lands thereabout will make fortunes out of them, in addition to the coal yet to be raised.

The present and future value of this district can scarcely be estimated, as there is no pit deeper yet than 450 feet, and down to that depth there are two distinct good seams, with every indication of others beneath, and with the certainty of this new one above through that portion nearer the Lake, whilst it is more than probable that the kerosene shale seam is also in it at a depth.

IRON is also being made at last in marketable quantities, as per following extract from *Sydney Morning Herald*, referring to a mine on our Western line of railway, about 100 miles from Sydney:—

COLONIAL MADE IRON.—We are given to understand that the Bowenfels Iron-works have now been working for about two months, and produced about 400 tons of pig-iron, samples of which have been exhibited in the Exchange and other parts of the city, and that favourable replies have been received as to quality after trial of a bit sent to Victoria and Queensland. The directors are now so satisfied that iron in any quantity, and of best quality, can be produced that they have blown out the furnace with the view of making additions, &c., and have called a meeting of shareholders to consider the advisability of erecting another furnace, rolling-mills, &c., for manufacturing it into all kinds of merchant iron.

Whilst by another extract, as under, the original Fitzroy on the Southern line, about 90 miles off, is also again at work:—

THE FITZROY IRON MINE.—We are informed that the Fitzroy blast-furnace is at work, making excellent pig-iron with coke made from Bulli coal. The furnace is at work, and produces upwards of 100 tons of excellent pig-iron per week, and the quantity is increasing daily, and will certainly reach 150 tons in a few weeks. With a regular supply of coke, which can be obtained from Bulli, if the Government will charge reasonable railway rates, or with coke made at the coal lands purchased by Mr. David Smith, the late manager, within 3¼ miles of the furnace, these works can supply all the iron and railway bars required by these colonies, and to effect this the additional works can be erected in 18 months.

Besides these there has also been discovered, near the present extension of the Southern Railway, very large deposits of iron ore; one lode varies from 15 to 50 ft., and surface specimens assay 64 per cent. metallic iron; another lode is Franklinite, 4 ft. thick, with clayband walls between it and the true wall, the whole showing more or less over about 100 acres, with limestone, fire-clay, and permanent water handy, but no coal nearer than 15 miles, and this little distance so frightens our enterprising (?) capitalists that the iron is left neglected, for the first stranger who chooses to freely select, or buy at his own price from the Government.

On our Northern Railway, about 100 miles from Newcastle, there is one very peculiar formation, where in the face of a high range there are three lodes of iron (hematite and clayband), and four seams of coal (one of them cannel) outcropping at an angle of 40°, so that they can be driven in on to and stoped out overhead. They are of good quality, and fair workable size, but also *left alone*.

Kerosene shale also, about 2 feet up to 8 feet thick, outcrops for miles, about 9 miles from the railway, and although the samples from it tested first-rate, *that* also is left for the future, and for the first comer to secure for himself.

Of the real mineral riches of New South Wales there is no doubt, and whenever any of the mines are honestly worked, fairly managed, and started with a reasonable capital at first, the whole of which is to be devoted to working, and not the bulk of it given to promoters, then, and not till then, shareholders will reap as good a return as in any other part of the world. R. D. ADAMS.

NOTE.—The West Wallsend—a new company formed, I believe, in London, to work 2000 acres, between Black's 2560 acre freehold and the Wallsend near Newcastle here—have just cut the top seam in their trial shaft, about 90 feet down, and as the main Wallsend seam is known to be in the ground (beyond Black's freehold, and miles away to the south also), the shareholders may now feel pretty sure of their venture being a certainty, and from the dip will probably find the third seam in it also, when sunk for. R. D. A.

MINING IN QUEENSLAND.

SIR,—The exports for the year 1875 for this colony was as follows:—

Antimony ore ... ...Tons	88	... ...£	745
Black sand	15	... ...	1,000
Coal	2,708	... ...	1,925
Copper ore	219	... ...	5,714
Do., smelted	1,291	... ...	105,549
Gold ... ... Ozs.	359,076	... ...	1,383,710
Do., specie	—	... ...	9,686
Tin, stream, to Sydney ...Tons	3,885½	... ...	190,671
Tin, smelted, to United Kingdom	560½	... ...	45,255
Do., Sydney	26	... ...	1,948
Do., Singapore...	cwt. 1	... ...	5
Tin, total	586	... ...	47,208

In antimony ore there has been a decline. In black sand an increase. Coal stationary, owing to want of carriage. In copper a miserable decrease of about one-third. In gold a splendid increase, and as for tin we must work it out in detail; 104 tons ingots were forwarded during the year from Warwick. According to my last letter to you, as there was 586½ tons exported, the balance, 472½ tons, represents the total Bulinda tin exported on the year. Again, there were 4613½ tons stream tin forwarded against 3885½ tons exported, the balance, 728 tons, having been smelted into the 472½ tons ingots already mentioned, which is equal to about 65 per cent. fine, but as we cannot possibly tell the exact quantity in ships' bottoms ready for export, or warehoused at the port, these figures are close enough for all purposes, and prove those in my last letter as correct. There has been no tin shipped to Singapore, and all the tin shipped direct to London from this port has been in ingots, while there has been considerably more than one-half of the tin forwarded *via* Warwick to Sydney in its natural state.

ON THE TIN FIELDS.—I have to report the drought over, and great activity prevails in some of the workings; large stacks of wash-dirt which has been piled during the dry weather is now being put through the sluice. The drop in the price of tin (the cablegram of to-day announces it down to 71s.) has affected Stanthorpe more than the mines; the storekeepers have been heavy losers, and while some have flown to the protection of the Court, the greater portion offered compositions, which were generally accepted, so that it is our importers who are supplying the London market with cheap tin. This, of course, is now all stopped, and the tin coming forward is now paid for.—*Brisbane, March* 6. RESIDENT.

SULPHUR MINING IN ITALY.

SIR,—I have read with much interest the article in last week's *Mining Journal* in which reference is made to the Gibellini Sulphur Mine, in Sicily, the more so because I happen to be responsible for the work going on there. Sulphur mining has difficulties of its own. In the first place the produce is poor; it is only worth about 4*l.* per ton at the mine when fused from the ore, and the ore contains on the average throughout Sicily only 25 per cent. of sulphur. The richest ore out of very many that I have seen only contained by analysis 35 per cent. of sulphur; but about one-third of the sulphur is lost as fuel in the primitive kilns generally used. The improved kilns which you mention as patented by Mr. Gill are made for the consumption of coke, and by this means an increased yield of more than 40 per cent. in excess of that got by the usual method was obtained at Gibellini on the last twelve months working, and his system seems likely to be largely adopted throughout the island. But the greatest difficulty to be encountered is due to the state of the country, which, owing to the want of communication and the absence of skilled labour, is a bar to the introduction of the most obvious improvements except at a very slow rate. Unfortunately I have just heard by telegram of the death of the resident English manager of the Gibellini Mine, whose knowledge of the people and language, and many excellent qualities in other respects, make his loss severely felt, and I fear that I shall find it difficult to provide a substitute to carry on the interesting work which, as you point out, is now going on there. W. SHELFORD.

Great George street, Westminster, May 3.

EXCHEQUER GOLD AND SILVER MINE.

SIR,—I regret to find from a letter in last week's Journal that I failed in my previous letter to reach the understanding of some "Shareholder." As I am bound to assume that the fault may lie with me, and that there may be other shareholders in the same condition as your correspondent, though I have some reason to doubt it, perhaps you will kindly allow me to try to explain. My letter was not due to any "weight and value" I attached to my "own utterings," but partly to the weight and value they had acquired by being reported in your columns, and partly to the value I attach to truth and honesty, both of which I consider I should have violated had I allowed your report to pass unchallenged. "Shareholder" seems to think that my only object is to depreciate the mine, and that I have some sinister motive for doing so; at least this is the only explanation I can conceive for the triumphant glee with which he proves, as he thinks, that I have stultified myself in saying things which he considers to the advantage of the mine. Anyone who cares to enquire at the office, or of the company's broker, will find that it is obviously to my interest to speak well of the mine. That is, however, in my estimation not a sufficient reason for allowing myself to be saddled with statements which I did not make, and which I consider untrue, nor for sanctioning the omission in the report of what I should have thought it dishonest to omit from my speech—that I was offering a few hundred shares for sale at a fraction above the then market price. "Shareholder" says that I "meant something or nothing" when I said that, assuming certain data, we should get 450*l.* per cent. per annum. I meant, and I said, that if we took the directors' report as a guide we should arrive at that result (I might more correctly have said 534*l.* per cent.), but I showed that the data contained in that report was exaggerated and misleading. The report distinctly assumes "20 tons a day for 300 working days per annum, of ore showing an average of 95*l.* per ton," as the legitimate data from which to "arrive at an approximate estimate of what the future of this company bids fair to accomplish in respect of dividends." Now, 95*l.* is not an average of our best available stoping ground even, but is the mean of five picked specimens, three of them taken "from the face" of our most advanced drift.

My "even betting" estimate of 10,000 tons of ore, of the net value of 10*l.* a ton, would give at 20 tons a day for 250 days a year 50,000*l.* a year—*i.e.*, 50 per cent. per annum on the capital of the company for two years. My estimate for ten years gives 100 per cent. per annum as an average. "Shareholder" considers this more exaggerated than my speech, as reported, which made me put the returns at 450 per cent. per annum. True, I also said in my letter that I thought the odds were only 10 to 1 against 1000 per cent. per annum, but if you discount this at the odds stated, you again get 100 per cent. as an average. There were some points of difference between my speech and the report of it, which I omitted to notice, as being of litttle or no importance; but perhaps I ought to have stated that I saw plenty of rich ruby ore at the mine, though none so rich as that lately sent home. There are also several errors of minor importance in "Shareholder's" letter, and some offensive personalities not worthy of notice.

May I, in conclusion, remark that I consider our property much too valuable to need any artificial gilding; and I believe that nothing has so much retarded its success as the nonsense which has at different times been published about it.—*May* 1. A. JOY.

RICHMOND CONSOLIDATED MINING COMPANY.

SIR,—Why are we without weekly reports from our mine? It cannot be because the furnaces have been shut down, for the exploration does not cease during such annual interruptions. Other American mining companies publish periodical reports, and why the Richmond has during the past few weeks stood out as a conspicuous exception is not easy to conjecture. Surely there is no truth in the report, somewhat freely circulated in "the House," that another manager has been sent out to replace Capt. Rueben Rickard, because his weekly letters (or such extracts therefrom as the directors deemed expedient to publish) were so discouraging that an agent with a more fertile imagination and a freer pen, however "puzzling to the will," should have ample facilities to indulge his mental fancies. Capt. Rickard was selected by the Rev. Mr. Probert because of his suitability for such a position, having at the Pontgibaud Mines gained an experience justifying the Messrs. John Taylor and Sons speaking of him in the highest terms—an amply sufficient diploma.

With such an experience, obtained under the management of such a firm, it would be no easy task to find a *practical* man whose opinion upon a mine is more entitled to respect than that of Captain Rueben Rickard, or one who would more hesitate to "paint the lily or gild refined gold." These are a few grains—there are more to come.—*Stock Exchange, May* 3. MEMBER.

MANGANESE BRONZE.

SIR,—In last week's Journal, under the above heading, I find an article wherein the following remark occurs, "It was only at the last meeting of the Iron and Steel Institute that Mr. Bessemer himself gave credit to manganese for enabling him to carry out his process to a successful issue." Allow me to correct this statement, which is somewhat erroneous. It was not to manganese that Mr. Bessemer gave credit, but to me and to my process, which consists not merely in adding manganese to remove the oxygen of the pneumatised iron, but likewise restores to it the deficient amount of carbon, and this I have effected by using spiegeleisen, a product which supplies both the metallic manganese and the carbon essential to the success of the pneumatic process. Moreover, although Mr. Bessemer had not at any public meeting declared the merit of my invention, he had fully recognised its value. Previously to the last meeting of the Iron and Steel Institute, at which, infinitely to his credit, he heartily approved of the presentation to me of his gold medal for the year 1876 as an acknowledgement of the importance of my process.—*Cheltenham, May* 2. R. F. MUSHET.

GOLD MINING AS IT IS.

SIR,—In directing the attention of your readers to this subject it is not my intention on this occasion to refer to any foreign mines, which I have had opportunities of seeing in various parts of the world, having faulty appliances in use, as within a few hours of London anyone interested in and acquainted with gold mining can see such appliances in full operation, and form their own opinion of their value, and the consequences resulting therefrom.

It is well known that for some years gold mining has been carried on in Wales, and that the ores of the district have been subjected to all kinds of complicated processes, under the auspices of professors, patentees, and others from all parts of the world, a combination of parentage, which from various causes have proved fatal to success. Yet it is an established fact that a large amount of gold has been obtained in Wales by the patient, persevering industry of one or more working miners, unaided or assisted by professors or patentees, though no permanent and lasting results have been achieved; and although numerous companies have been called into existence, and enormous capital provided for working, gold mining in Wales at the present time has but one struggling representative.

Some few months ago having business in Wales I visited the Clogau Mine and works, where, to my surprise and disappointment, I found the same process being tried (but not so effectively) which was in use in the early days of gold mining, some 12 or 15 years ago It was very evident that no regular plan of operations, or any particular system, was being followed, the object apparently being to feel the way (so to speak) as to the best methods to be adopted—a rather unsatisfactory state of affairs, and one which promises little for the success of the undertaking.

With every respect for the opinions of those under whose control the operations are being carried on, I cannot help expressing my surprise that in the present day it is possible for a company ostensibly engaged in the extraction of gold to make use of the rude and primitive appliances which have been discarded years ago, instead of adopting the system which has been proved by practical experience to be the most effective for the profitable extraction of gold from ores of similar character and value to those at Clogau. If evidence were needed to substantiate this statement it is abundantly proved by the satisfactory results realised elsewhere during a long series of years. It is also equally well authenticated that the system which is being attempted to be carried out at Clogau must end in disappointment to all interested. In making this statement it is quite possible that my opinion may be the subject of adverse criticism; this is of little moment if it be the means of directing the attention of those interested to the use of effective appliances for saving gold, and, consequently, of removing much of the stigma which at present attaches to gold mining generally, on account of the careless or inexperienced manner in which the operations are conducted.

At the time of my visit to the Clogau Works the machinery for reducing the ore consisted of a stone-breaker, a very clumsy and badly-arranged 10-head stamp-mill, with copper plates attached, also a curious arrangement of blanket strakes, and two patent mills or pans for grinding sand and sulphurets, in addition to which a few "Britten" pans were employed grinding the picked ore, or such as contained visible gold, the ore for the "Britten" pans being prepared by a miniature stone-breaker.

It is enough for my purpose at present to confine my observations to the stamping operations, which may be thus described. The stamped material as it passes away from the stamps is allowed to flow over copper plates coated with mercury, the free gold in the sand and water as it passes over being supposed to be arrested by, or to adhere to, the mercury on the copper plates, but it has been proved that copper plates are as liable to lose gold as retain it, and their use now in successful gold mining is almost entirely abandoned; after leaving the plates the sand and water pass over the blanket strakes, on which the fine gold and heavier particles of mineral are retained (to be afterwards ground with mercury in the mills or pans), the lighter portions passing away as waste tailings. I was informed that eventually it is intended to re-work the tailings by a patented machine then on the works, but not in position.

Such is an outline of the stamping operations at Clogau, which I venture to assert will never succeed in returning a profitable percentage of the assay contents of the mineral, and if further evidence is required of the value to be attached to such a system it will be found in the *Mining Journal* of April 8, wherein a similar process is described as being in use at the Javali Reduction Works, at which establishment the gold obtained per ton has been under 5 dwts., while the assay value of the tailings after passing through the whole process is stated to be 13 dwts. of gold per ton!

The extraction of free gold is in itself a simple operation, but when all the expenses of mining, carriage, and reduction are to be met by the treatment of a few pounds of picked ore per day in "Britten" pans it never can pay. On the other hand, when gold is combined, as in the Clogau ore, with foreign substances it cannot be readily extracted, and requires special treatment. And it will be cause for regret and a loss to the country generally if the future of gold mining in Wales has to depend on the success or otherwise of the rude and slovenly appliances I saw in use at the Clogau Works.

There is, in my opinion, the strongest and most undoubted evidence

of the existence of all the elements of successful gold mining in Wales, and to an extent quite equal in character and value to anything which has come under my observation during an experience extending over 25 years, but from personal observation of what is at present being thus attempted, and from information obtained in reference to previous operations of a like character, I am strongly of opinion that gold mining has never yet been property or fairly tested, and that gold mining as it is is not what gold mining should be.—*Moorgate-street, May* 4. —— C. J. HARVEY.

THE AMMONIA PROCESS.

SIR,—I am much obliged to Mr. Smith for his ready response to the enquiries I addressed to you on this process, and whether the answer is complete or only partly so he has shown that he has the courage of his convictions in the ready way he has replied to me. I was not disposed seriously to question the efficiency of ammonia as an agent for the extraction of metals from their ores, because the same agent has been employed, I am informed, in the manufacture of soda on the Continent, and with such success as practically to revolutionise that manufacture; and although I know but little of chemistry, I do not see why a like success should not attend the extraction of metals. I looked at the matter rather with commercial than chemical eyes, and felt that if a commercial success can be attained without an enormous cost in plant, and with only a reasonable cost in the working agent, a great mercantile benefit must arise. This would seem to be the case, if Mr. Smith's letter be taken as a solution of the practical working out of the problem which it envolves. But is it a full solution? Such pure salts of silver as he refers to, and which I must admit as an experiment is very beautiful, would, I suppose, be more readily acted upon than ores in intimate connection with their gangue, and which in chlorodising with salt and precipitation with iron is emphatically a dirty process, so dirty, in fact, that it seems to me hardly possible it can be made a profitable process except with rich ores—not only so, but this dirtiness seems likely to neutralise the effective action of the chemical agent employed, and, therefore, increase its cost as well as the cost of labour. If the ores were poor in silver it is probable that this state of things would tell against the process considerably. I have in my mind a mining property with which I am associated which contains some very rich copper ore with considerable silver and a certain percentage of tin. It also contains, like many other properties, some stuff containing copper and silver together, but of a lower percentage. The former can be made marketable to advantage in the ordinary way of mining, but the latter requires some such aid as the ammonia process fairly to utilise it. Can Mr. Smith secure the whole of these products at a fairly remunerative price by his process? Again, in the same property there is a cross-course of silver-lead, can he utilise these products also? In short, can he for an outlay of about 4000*l.*, or even 5000*l.*, in addition to the mining outlays, secure by his process all the mineral products of this property? If he can, and will, he will prove a benefactor to an important branch of home industry. ENQUIRER.

THE NASCENT COPPER PROCESS.

SIR,—I think it only doing what is right and proper in writing in this manner, considering the attention paid and information afforded me by the patentee himself at the Nascent Copper Works, and my introduction was of the old-fashioned school. Having heard of the new process, and having some little smattering of chemistry, plenty of leisure time, I therefore made my way thither, stated my case, and was received with the same grace as if I had passed a handsome gift in the shape of cash into the bank to the credit of the affair. Without indulging in any more preliminaries (or rhapsodies, if you will) I will proceed to go to the purport of my letter—*i.e.*, to give a rough outline of the whole method employed at the works before mentioned, beginning with the property and the crushing of the ores, thence to the burning and treatment of the same. In the first place, we must premise that the Nascent Copper Works at present belong to a small party, who certainly have laid out a very great deal of money—and, in fact, brought the property to such a state of perfection that a small amount (comparatively) only is required to make this highly remunerative. Such I believe to be the case, and the reason of its disposal to a company now in course of formation. The works proper (that is within walls) are contiguous to the River Tamar, up and down which steamers and enormous vessels sail, and, therefore, as far as carriage is concerned, are quite up to the mark for cheapness, are entered through large double gates, and at first the general appearance of the whole of the place has a rather depressing effect, which, however, wears off very soon; this is caused by the dilapidations, the floorings (granite) torn up, the furnaces pulled down and sheds allowed to fall in and become a heap of ruins, instead of—as an owner would—preserving the whole in as perfect a manner as possible, or pulling down and building cottages on the spot. It appears that some twenty years ago a large company spent a fortune in building and bringing the works to the state we may judge they were from present appearances. From the fact of the then manager's extravagance and neglect, the company eventually went into liquidation, leaving the property in splendid condition, and fit for any smelter in the world. However, for the want of care, as before stated, all is in a state of decay. However, all is not so far gone that its former grandeur is not to be restored, for I believe after putting new roofs on the outlay would not be so extremely large to put the rest in proper trim.

The present proprietors have restored three square and built two round furnaces, besides doing all that it is needful towards the covering of the same and keeping dry; and I understand the new company intend to extend the restoration to as much of the property as possible. Besides furnace sheds, there are assay offices—two, one in very bad condition—general offices, forge, and other erections. Outside the works proper the proprietors have most extensive piles of refuse matter, debris from the old mines hereabouts, containing lead, copper, silver, and other metals, and from which the lessees derive their supplies in the shape of ores. The piles are picked, the worthless portions thrown on one side, and the remainder taken to the steam stamper and crushed to a degree of fineness by being flushed through grates with water. Although drags are laid down I could not see that any actual benefit was derived from them, and the stuff might as well be stamped direct into pits. However, the object of my writing is to give an outline of the Nascent Process in particular, and I am digressing; returning, therefore, to the works. We pass on the road a load of ore (crushed) on its way to the furnaces, and make our way thither. As already stated, there are three square and two round ones, which are in order for operation, the ore being brought in is tipped on to a flooring of tiles, under which small fires are kept going; this in course of a very short time warms and drys it, and from thence it is carried on to the top of the furnace (being previously mixed with about 10 per cent. of common salt), where the drying is completed, and in that state is placed in the furnace; the internal arrangement of these comprise a hearth of tiles, under which fires are kept going day and night; the heat applied converts the ores from the sulphide to the chloride by the sulphur decomposing the salt, forming sulphate of soda, and changing the metals into soluble matter.

After remaining under heat for about six hours the stuff is removed to the tanks—vessels made of wood braced together by bars of iron nutted at both ends—the interior is fitted with a false bottom perforated with holes; on this is placed large pebbles, then a layer of a smaller size, gradually decreasing until the top is covered with fine gravel, over which common salt bags are laid; this forms the filter, the cooked ore being laid on this, and the tank being filled to within about 6 in. of the top, water is passed in until the whole is (as it were) swimming; jets of steam are then applied, and in a space of 20 minutes or so the water is quite boiling; after remaining for two hours the tap under the false bottom, and between that and the bottom of the tank, is opened and the liquor allowed to run out into the precipitating vessels beneath, in which iron (preferably boiler-plate) being placed the copper is thrown down, taking with it the silver-lead and other metals. Fresh water is then passed through the ore in a boiling state, and further on a third supply, which, as a rule, thoroughly cleanses the ore from anything metallic contained in it. The precipitation tank meanwhile has had steam applied, and the whole is kept in a state of agitation for six hours, by which time the liquor has given up the matters heretofore remaining in solution. There are four tanks in all, two leaching and two precipitating, the waste liquor from which dropping into a well is pumped up and used over again, so that no loss can take place, and so the operation goes on day and night, and is certainly most interesting. The resulting precipitate gives about 75 per cent. of copper and about 120 ozs. of silver per ton, which the new company intend bringing into bars by running down in a flowing furnace, now in course of erection. Coals can be obtained for very little over 1*l.* per ton, salt costs about 1*l.* 1s., and other material at most reasonable rates.

Taking, therefore, everything into consideration, I think the company have exceedingly good prospects, as on comparing the cost with the results I find that a profit of about 30 per cent. is made on ores for which the full market value has been given, and the proprietors are doing very well with their own stuff, but the scale is too small, as anyone can see, to obtain the remuneration that otherwise would be if the number of furnaces at work and tanks were at least doubled, and the sulphur and other volatile matters, that at present are discharged into the air, condensed and made marketable.

That the Nascent Process is a success, and no mean one either, none will deny, even large portions of the mining community having adopted it, for instance the New Great Consols and the Emmens United Mines, and the fame thereof has extended to America, and afar off, and I heard the same expressed by many in London.

London, May 3. —— TRAVELLER.

BORING MACHINERY.

SIR,—In the *Mining Journal* of April 29 your correspondent "D. J.," in speaking of Boring Machinery, assumes certain points as facts, and asking various questions which my personal experience, now extending over six years, enables me materially to modify, if not to answer. In six years and three months I have had six McKean Drills, of which two are used up, and four are still in good working order. During that time I have driven 448 fms. of ground. This sets at rest the durability of the machines, and the statement that "not a machine extant will do anything like 70 fms. driving."

Your correspondent further states that the cost of the drill in wear and tear amounts to 10s. a fathom. In three months and ten days, ending this very day, we have driven 50 fms., the level at the present moment being 8 ft. high and 6 ft. wide. The machines during that time have not wanted any repairs whatever beyond what the blacksmith was capable of effecting, and during the past 12 months I have only had to pay 20*l.* for repairs and the supply of extra pieces. The cost of the machines themselves is, no doubt, but a small part of the cost of the whole of the plant necessary to keep them going, but if you take into consideration the enormous saving in ventilation effected by the compressor we have no right to charge its cost solely to the borers. The level is 650 fms. in length. What would it have cost to ventilate such a length in the ordinary way by rises to the surface of 30, 40, or 50 fms. in height? I have still about 75 fms. to complete the level, which I expect to do with six men by the end of October, when I shall have much pleasure in sending for the information of your correspondent and the mining public an abstract of the total cost of the undertaking.

In the meantime the following facts may be interesting:—448 fms. of ground have cost for dynamite, guncotton, powder, caps, and fuses, 590*l.* We have only one boring shift in the 24 hours, and we bore with one machine in 24 shifts 200 yards of holes. Having at present a soft stratum to lay in by at top, four men work this out by hand, and the machine follows, and has to blow up 5 ft. of hard grit in the sole. The holes are 5, 6, or 7 ft. in depth, according to circumstances, and require nine or ten charges of dynamite, and each shot has to lift about 3 tons of stuff.

From the reports of the wonderful doings of Mr. Favre at the St. Gothard Tunnel and other undertakings of a like nature the practical miner can learn nothing. The contractors do not care about the cost; speed is to them everything; they have an unlimited supply of money, and are determined to pull the stuff out by the hair of its head. They pay over 5*l.* a fathom for dynamite alone, and can afford to throw a machine aside the moment it has a screw loose. Not so the practical miner; he must husband all his resources, and if he wastes a charge of dynamite he knows he will have to pay for it himself. Last month my six men drove 16 fms. straight ahead, 16 fms. at 78s. a fathom, and a siding or turn-nail 6 fms. in length at 40s.; total earnings, 85*l.* From which had to be taken off—candles, 1*l.* 8s.; dynamite, 11*l.* 10s.; drawing to bank, 11*l.*: total stoppages, 25*l.* 13s. Mining at the rate of 2 fms. a day can, of course, be accomplished as well in Yorkshire as in Wales or Switzerland, but in my case it would cost double the above, and who would find the money?—*May* 4. —— GEO. WM. DENYS, Bt.

REDUCTION OF PATENT FEES

SIR,—That it is most impolitic to make an English inventor pay ten times as much to protect his invention as is charged in other countries cannot for a moment be doubted, but it would be well to see that if the Government fees be reduced the inventor shall get the benefit, and this is a question the Inventors' Institute could turn their attention to. All the special branches of the Society of Arts—the Indian section, the Educational section—and others which have stood the test of experience—have succeeded, and I hope the Inventors' Institute will be equally successful. They should make it known that what inventors want is not only low Government fees, but such simplicity in the law as shall enable them to dispense with the assistance of agents. It is stated in your report of last week's meeting that an English patent costs 150*l.*, and an American one 7*l.* only, but I think the last figure must mean 70*l.*, and I will tell you why. I never patented but one invention, and as it well remunerated me I do not complain on my own account, though the agent's charges compelled me to sacrifice one-third of my invention, because I had to borrow money in consequence. I found that when I wanted my patents that there were 25*l.* Government fees to be paid in England, and as there was one simple drawing to make the agent guaranteed that his charges would not exceed 20*l.*—a draughtsman would have charged about 30s. for the drawing, even had it been from a rough sketch to that of the finished drawing I supplied, and which I could as well have made had the agent told me exactly what he wanted. But even charging 2*l.* for the drawing there would still remain 18*l.* for the trouble of preparing the necessary documents and delivering them to the proper officers, who are, of course, unknown to the public.

Now, I was quite ready with 55*l.*, having been saving it for several years, and thought to secure an English and an American patent, anticipating that the American fee was 7*l.*, and that the American agent whom my agent employed might want 2*l.* or 3*l.* for his trouble. Instead of this he charged me a lump sum of 35*l.* for the American patent, and I had to supply him with a model to send over. There were very few documents for the American patent, and I thought he would certainly supply them out of the very handsome remuneration of 18*l.*—the provisional specification of the English patent was deposited within three hours of my first meeting the agent at his office—so that you may judge there was not very much to do, and there was certainly not a day's work with the final specification. As it was, the agent's fees on the two patents amounted altogether to 48*l.*, and the total charges I had to pay were 80*l.* instead of 55*l.* It may be supposed that the borrowing of 25*l.* is an easy matter, but that is not the case. I could not obtain it at 10 per cent. interest, and only procured it at last by accepting the co-operation of a capitalist recommended by the agent, and the conditions forced upon me were that other patents should be taken in France, Belgium, Italy, Germany (which was never obtained though much money was spent in trying for it), and Russia, in respect of which I have a document which has been delivered to me said to be my patent, but I can see nothing that looks like my name in it, and the patent really seems to have been granted on my behalf to some Pole or Bohemian with an unpronouceable name.

For these additional patents over 250*l.* extra was paid, nearly 300*l.* in all being the amount of the loan, and the result was most unsatisfactory. I transferred one-third of my patent rights for the loan; of the Belgian, Italian, and Russian patents the delivery of the documents was the last I heard of them, my capitalist undertaking to negociate their sale, and probably troubling himself little more about them. There were some negociations about the French, and there seemed to be a disposition at one time to purchase for 500*l.*, but the intending purchaser, an Englishman, having discovered that he must manufacture in France, the matter fell through. This scarcely seems favourable to your suggestion that manufacture in England should be a condition of English patents. Well, the capitalist did nothing with the French, Belgian, Italian, and Russian patents, and I tried for two years without success to get an English manufacturer to take the matter up. Everyone said that they could not disturb their existing plant to test my whimsical notions, and so on. At last I got an American to undertake the manufacture, on condition that he should pay nothing for the patent, but should expend 10,000*l.* in testing it, and give me two-thirds of the profits realised. This was the most honest and energetic man I ever had to deal with. The plant was put up in almost no time, and I received a supply of the manufactured article so soon that I was quite astonished. It sold well, both in America and in England, and as the profit was 75 per cent. both I and my capitalist have been receiving from 1200*l.* to 1500*l.* between us for the last seven years.

My American patent has thus proved invaluable to me, enabling me to leave the workshop and live at my ease; but I was especially fortunate in finding such a manufacturer. I may say the effect of my having to get the co-operation of the capitalist in taking the patents has cost me 500*l.* a year, as I should have had the whole of the two-thirds received from the American instead of only two-thirds of it. But this is not all; the capitalist was a regular thorn in my side, because he wanted to get some money down so as to recoup himself at once, and the consequence was that I nearly lost the American manufacturer through my partner's obstinancy. However, it is all right now, and what I have learnt is that more profit can be made by manufacturing in America and selling here, than by manufacturing here; that the less the inventor has to do with patent agents the better; and that whatever proportion of his rights may be transferred for any money lent the inventors should not permit the capitalist's name to appear in the patents, nor give him power to prevent sale.—*May* 1. INVENTOR.

DESTRUCTION OF FIRE-DAMP.

SIR,—Some twelve months since there was a long discussion in the *Mining Journal* with respect to the practicability of rendering explosions in collieries impossible by absolutely destroying the fire-damp which causes them, and I should much like to know whether anything has been done towards developing the invention. I cannot recollect the precise year in which the matter was prominently before the public, but believe the discovery was claimed about the same time by an Englishman—Mr. Arthur Wall—and by a Frenchman—M. Jules Lemat, or De Mat. Both inventors surrounded the subject with much mystery by declaring that the material used was a secret known only to themselves, and that they would not patent it until they had been amply rewarded in hard cash. Of the Frenchman's invention I do do not recollect more than one notice having been published in the Journal, but there were many columns of Mr. Wall's letters, which contain innumerable statements of what he could do, but not a mention of how it was to be done.

You will recollect that you attended some experimental trials of the discovery at a solicitors in Bedford-row, and the report stated that the substance employed for destroying the fire-damp was enclosed in screens, and it was proposed to place these in the working places, and remove them from time to time as they became exhausted. The material must have been potent, for I recollect that one experiment recorded was that of placing a charged screen to form a diaphragm in a box, and that although an explosive mixture of air and lighting gas was admitted in large quantities on one side of the box, and forced through the screen, it was so completely deprived of its explosive properties that a candle on the other side of the screen would not ignite it. Mr. Wall declared that all the hydrogen was extracted from the fire-damp and converted into water, so that nothing but the inoffensive carbon remained. If this were really so, and if, as Mr. Wall stated, the screens actually attracted the fire-damp, it seems regretable that nothing has been done to develope the invention.

That the discovery should never have been tested appears the more remarkable, seeing that at the period I mention there were two independent inventors in the field, and some questions were also raised as to whether the discovery was not more than half a century old. Be this as it may, I should be glad to hear of the value of the discovery being thoroughly tested, and with our present knowledge of chemistry there could certainly be no difficulty in ascertaining what material was used in the screens. I trust some of your scientific correspondents will give the matter their attention.

April 25. —— PHILO.

MINING v. UNDERMINING.

SIR,—The continuation of this subject may be uninteresting to some of your readers, but as we have promised a series of these papers we enclose the following. We have already been accused of hinting at personal matters, but as our writing is presumably fictitious we would advise the reader to understand it as such if he can.

In referring last week to the cost-book and limited liability systems, we never intended to assert that the cost-book has not been abused; the instances, however of such abuse, and the amount of loss incurred, when compared to the limited company, may be compared by units to thousands. We would, however, say, if the limited company is necessary, let every shareholder be assured that the Articles of Association contain a clause for frequent meetings for the presentation of accounts, &c., ascertaining the amount really expended in labour, &c., and how much for management. The trouble or cost of a general meeting is much less than that expended in printing circulars or paying large sums for the disposal of shares. The good mine will be soon discovered, and investors' money placed in proper channels.

When it is presumed that five-eighths of the cash raised for genuine mining is expended in labour and management, any suggestions which might lead to a saving in this important item should be considered with much care, and here we would hint that the miners, especially those of Cornwall, earn perhaps less than they ought, and a reform in the mode of employment is obviously necessary. Such reforms, we believe, may be made by the adoption of real contracts, abolishing the hateful system of what may be termed owner's account tutwork. The house is erected, the railway constructed, and ships are built on contract, and, wherever practicable, the men employed do it on piecework. It is supposed, too, that the miner has his contract for sinking a shaft or driving a level. What is the real case, however? The captain lets to him for what is termed a short stent—say, a month at most—at a named price per yard or fathom. If the ground turns in his favour he works less, knowing that however much work may be done, he will only receive his 3*l.* 10s. or 4*l.* per month, in accordance with the rule of the mine. Thus, less work is done than should have been, and consequently a loss of time, which means money to the proprietors. On the other hand, if the short contract named should be against the miner, the captain at the end of the month advances him a certain amount over his next month's earnings, sending him home in debt, but with the promise of giving an excess value next month. It will be seen that such bargains are really no contracts, and that the work is really done by day labour. It is marvellous how a mining captain shall be able for (say) 14 years in succession to be enabled to let his contracts in such a manner as to have no variation in price in men's labour to the extent even of 5s. per month. The excavator at surface is very shrewd, and has a much better opportunity of judging his ground than the mining captain can ever have, yet for various reasons he knows that the wages of his navvies will fluctuate, but always pays them according to their earnings.

The mining captain was never yet found whose judgment has been so correct as has been apparent on the cost-sheet. We are quite aware that he wishes to please his committee, of whom more anon. Meanwhile, considering the waste of time involved in development, there is no doubt that at least one-eighth of the expenses on this item are entirely lost to the shareholders. This portion of

our paper being longer than was intended, a continuation may be expected next week. T. VOSPER.

Finsbury Circus, April 27.

DOUBTFUL MINERALS, AND DUAL NOMENCLATURE.

SIR,—The Department of Mineralogy at the British Museum is, as you put it, undoubtedly of much interest to very many of your readers. To me it is of intense interest, as may have been gathered from my communications on this head in the *Mining Journal* and *Chemical News*. Prof. Maskelyne, at the head of his department, literally may be said to be "the right man in the right place;" and, fortunately, he has assistants to whom the same compliment may be fitly paid. The national collection of minerals is, in truth, matchless, and the acquisition of 862 specimens in 1875, is a most gratifying fact. Your observations last week thereon are scientific gospel; please, therefore, favour the country with a reproduction of the following extract therefrom, in italics and in golden ink, if you can manage it:—"*The chief occupation of the department has been the systematic elaboration of the materials for the publication of a scientific catalogue of the whole collection, with crystallographic descriptions and chemical analogies of those specimens, the composition of which it is desirable more accurately to determine.*" Hurrah! This looks very much as if the talented professor really intended to make this a fitting opportunity for observing the centenary of his celebrated ancestor's great achievement at Schiehellion. Just three months ago you announced the formation of the Mineralogical Society of Great Britain and Ireland, which included the names of Ansted, Bonney, Brughardt, Church, Crookes, Davies, Foster, Geikie, Greg, Hall, Haughton, Heddle, Rupert Jones, Nicol, Rudler, Sorby, and a hundred others. With two such intelligent agencies in operation, I may now say that the days of "Doubtful Minerals, and Dual Mineral Nomenclature" are numbered, and that mineralogy will soon be rescued from its present semi-barbarous condition, and allowed to take rank as a distinctive science, as it ought to do. Once more, adieu. Sticky as ever— T. A. R.

May 3.

ROMAN GRAVELS.

SIR,—I desire to call the attention of my fellow-shareholders to the weekly report of this mine in your Journal of the 30th ult., as follows:—"You will be pleased to hear the Roman lode has come into the shaft, where it shows a fine course of ore. We bored into the lode 5 ft. yesterday, the whole length being in good ore stuff, the bottom of the hole being in rich lead. We intend sinking the shaft 15 fms. below the 80 fm. level before cutting through the lode and driving north and south."

It will be interesting to those shareholders who follow our manager's mining operations to learn that the position of the south engine-shaft was selected and the shaft commenced to be sunk in the year 1871, since which time the sinking has been only slightly retarded by the influx of water. In the month of February, 1875, when about 6 fms. below the 65 fm. level (old workings) a sparry lode was passed through, and in March, 1876, within a few days of the time calculated by the manager for reaching the 95 fm. level we received the above report, reminding us it is only necessary to sink a few feet to correct levels before driving north and south in a rich course of ore.

I may here remark that the 95 has been driven within 9 fms. of the south engine-shaft, and 80 fms. south from the old engine cross-cut, and about 30 fms. north of the said cross-cut, together 110 fms., on the rich course of ore comprising the Roman lode. It is calculated that from the south engine-shaft to the south band of shale is distant 130 fms. together with the length of ore ground wrought, in the 95, equals 240 fms., yielding from 2 to 8 tons per fathom of lead ore the whole distance driven. The 80 is driven 30 fms. in advance of the south engine-shaft, and 40 fms. in advance of the 95, all the way in a course of ore, and the forebreast is valued at 80*l.* per fathom. The 65, driven 80 fms. in advance of the south engine-shaft, is again all the way in a course of ore. The winze sinking to the 80 is also valued at 80*l.* per fathom. From the above facts it is evident that the south section of the mine (south of the south engine-shaft) will give eight to ten years' work, yielding a profit of 50 per cent. on the gross sales. Comparing the deeper section of the mine below the 95 to corresponding depths in mines situate in the immediate locality (say, Pennerley 130 fms., Tankerville 167 fathoms, and Snailbeach 300 fms. deep), I need only leave my fellow-shareholders to judge of the immense quantity of ore to be extracted. Ere long our manager will increase his monthly returns of lead ore. TIMAH ETOM.

THE LEAD MINES OF DERBYSHIRE—No. VI.

SIR,—Mention is made in Domesday Book of seven lead mines in this county, all in the southern half, and it is pretty certain that some were worked in the time of the Romans. The last century appears to have been the palmy time of the Derbyshire mines. How different must the quaint, half-deserted little town of Winster, now surrounded by abandoned workings, have looked in those days. Few mines in the kingdom can have been more productive than those to the north and west of Winster—Placket, Portaway, Yate Stoop, and others; and even now the richest mine in the county, Mill Close, producing till lately about 100 tons per month, is only two miles from the town. It is very difficult to obtain accurate information on the produce of the Derbyshire mines; but something may be gleaned from the pages of Farey, a most reliable authority, who wrote about the year 1810. According to him, the Portaway Mine about the year 1780, was producing lead ore to the value of 2000*l.* a month, which implies a produce of at least 200 tons of ore. The Yate Stoop must have been richer still, for between 1760 and 1780 there were four steam-engines at work there, all on the atmospheric principle; one of which, a 50-in. cylinder pumping-engine, was placed underground. This mine was worked to the depth of nearly 200 fathoms. All the above mines, including the Mill Close, are situated near the junction of the limestone with the shale and grit, the veins running to great distances in the limestone grit just under the shale. The above veins run chiefly from east to west; but the Mill Close vein runs nearly north and south. When visiting the Mill Close nearly a year ago we found the engine idle, a great influx of water having taken place, which filled the mine up to adit. We now hear that a very powerful Cornish engine has been lately erected, but do not know whether the mine is again at work—information on this point is invited. The Mill Close has for many years been the richest mine in Derbyshire. Further south, at Ashover, the rich Gregory Mine was worked most successfully between 1780 and 1810, frequently turning out 150 tons of ore per month; the vein was followed in a westerly direction far beneath the grit. The Overton Mine, in the same district, was also very rich. In the small detached limestone field of Crich, with its dome-like cliff rising 800 ft. above the Derwent, the Glory Mine was very productive about a century since, and the Wakebridge some 50 years back. In this latter mine the vein made rich against the shale, just as the lead veins do in the Silurian rocks of Shropshire. The theory of all mineral veins being more productive at the junction of two different strata receives ample support in this county. Why it should be so is a circumstance which we have never seen even alluded to. Nearly all the rich mines of this county have been worked in the limestone where it dips beneath the shale and grit; for instance, the Gang Mine, between Cromford and Wirksworth, so romantically placed below the dark frowning cliffs of the Black Rocks, perhaps the boldest and most picturesque gritstone rocks in the kingdom. Whilst climbing their steep face one cannot help noticing the frequent heaps of white spar, showing where the old shafts have been. This mine was working between 1780 and 1830, and is mentioned by Farey as producing from 6 to 8 tons per fathom in places. The Cromford Sough is driven into it from Cromford Market-place, and takes the vein at about 80 fathoms. The mine is sunk beneath it, and was drained by pumps worked by water-wheels placed in the Sough. Again, the mines at Alport, near Youlgreave, on Longstone Edge, near Bakewell, and in other localities, have been rich where the different strata meet. Of course, there have been productive veins in the limestone at some distance from the grit, as was the case near Brassington, Middleton, Elton, Wirksworth, and elsewhere. At present the state of mining in Derbyshire is not flourishing, the only productive mines that we aware of being the Mill Close, near Winster, a mine near Eyam, and another near Peak Forest, north of Buxton. We cannot state the exact quantity of lead raised annually in the county; but should say that 3000 tons of metallic lead would be rather over than under; a less quantity than is produced by the Van. There are not more than two or three pumping engines at work in the lead district. Contrast this with the last century, when four were going on one mine, and 17 or 18 (according to Farey) on others; and yet, owing to the expensive land carriage, coal must have been dearer then than now. At present coal can be delivered on most of the mines at about 17*s.* per ton. J. B.

VAN CONSOLS AND GLYN MINES.

SIR,—Interested as I am in the mines adjoining the celebrated Van, I cannot but regret the mistaken policy displayed by the directors in separating the Van Consols from its promising offspring—the Glyn. On the one hand, there is a mine—the Van Consols—fitted up with perfect machinery for the crushing and dressing of ore in a very economical manner, the motive-power being derived from an unfailing water-course, but lacking, alas, the ore in sufficient quantity to make it a paying concern. On the other hand, there is the young mine—the Glyn—only a few hundred yards distant, opening out a rich lode of lead, but without a single appliance to make the stuff fit for market, no water-power, and no chance, either, of obtaining the required facilitities except at considerable expense and the usual delay. It is true that when this separation took place the Van Consols directors could not have foreseen the early development of the Glyn, but now their eyes are open to the verities of the case, and both mines being as it were under the same governance and direction, it surely behoves them and all interested in the matter to try to rectify this absurd anomaly of having two properties within a stone's throw, or so, of each other—one with splendid machinery idle, the other with a pile of ore, according to the manager's report, but without a bit of machinery to dress it. If union constitutes strength, here is a happy combination of circumstances which, if wisely utilised, would lead to beneficial results to all concerned, but if other resolves prevail it requires no prophet to point out how it will fare with both mines. In all probability there will be hope deferred in store for the Van Consols men, and to the Glyn shareholders bills without end for engines, machinery, and all other appliances, and perhaps, when the money has been all spent, the old and oft repeated story will come round again that the lode has disappeared.—*Birkenhead, May 2.* VEREMOS.

MINING SHARES—PENNERLEY AND GLYN.

SIR,—In reply to "C. W. S.," and "Another Cautious Man," you will, no doubt, allow me space to state to the former that his extraordinary visionary powers have deceived him, for I am neither a "bear" of Glyn shares nor do I wish to frighten holders out of their shares, which he considers so particularly valuable; on the other hand, I am what I stated in my prior communication, one who *invests* in mining shares on the best information obtainable. In comparing Pennerley with Glyn and East Van I did so with a view of suggesting that Pennerley was far below its real value, and that in the event of a better demand for mining investments the shares would rise, and hold a different position in the market to what they do now. I turn to the reports of the different mines in the *Mining Journal*, and find that the Van Mine produces 500 tons of lead, as well as a very large quantity of blende, monthly; I also observe that the manager of Glyn alludes to three points of operation, neither of which produces sufficient lead to value, or I presume he would have stated that value, or the quantity of lead produced at each point. I therefore conclude that "C. W. S." is, to say the least, premature in stating "that Glyn is the most promising young mine in Wales, and will *shortly* equal the Van in returns and dividends."

I thank "Another Cautious Man" for his correction respecting the market value of Glyn Mine, and no doubt many of the readers of the *Mining Journal* would thank him for information respecting the recently reported discovery; the remarks of "C. W. S." about the large course of lead ore in each end and the winze may be very satisfactory to the "lucky shareholders" who lately purchased at 6*l.* per share, but they are far too vague for—

May 4. A CAUTIOUS MAN.

CARDIGANSHIRE MINES (NEW AND OLD)—No. II.

SIR,—As it is now my intention that what appears under this heading shall appear as a prefix to a second edition of the History of the Cardiganshire Mines, it is very probable before I conclude the subject that many more communications may appear in your valuable columns before I finish with it. Taking the mines bordering on Montgomeryshire, and just on the eastern extremity of Cardiganshire, I would notice Plynlimmon Mine, which has produced a large quantity of lead ore, but which, from its position, being nearly 3000 ft. above sea level, renders work at surface difficult to carry on in winter, as well as the drought in summer interferes with its continuous working, and greatly increases the cost generally. I believe that the machinery now on the mine is more suitable for carrying on workings regularly than hitherto, and that there is a very great probability of this mine becoming a dividend and good paying property for the future. The next mine, adjoining the Plynlimmon, was the South Plynlimmon Mine, which has been abandoned and the machinery removed to the Bryn Glas Mine, which by former parties was worked to a depth of 26 fms. under adit, and from which a large quantity of lead ore was returned, and reports say (which I believe will be confirmed) that a rich course of lead ore has been left in the bottom. The machinery, erected by a single gentleman, is of great power, nearly new, and capable of pumping the water for sinking the mine, drawing the stuff, and crushing the ore for many years to come. To the Bryn Glas sett has been added an extensive grant to the west of it, called Bryn Weath, where some good lead ore has been discovered at surface. To develope these mines a capital of at least 5000*l.* will be required, and if the now proprietor could make arrangements with an influential company to work them on fair terms I am persuaded that they would open out a most valuable and lasting property, but they are too much for one individual to cope with, and the sooner my suggestion is acted on the better for all concerned, or about to be concerned, and the community at large. ABSALOM FRANCIS.

Goginan, May 1.

CARDIGANSHIRE MINES.

SIR,—I notice some remarks in the Journal of last week on this subject, and quite concur with the writer views as to the system of buying up the machinery of abandoned mines and inducing the public to repurchase the same and throw good money after bad in working the mines. The evil of this system is that instead of public money being expended in new trials in fresh places it is thrown away on mines which never proved productive, each successive company being assured that their predecessors were fools, and left off with the prize almost in their grasp. I believe Cardiganshire to be as good a county for lead as any in England, but looking at the last mineral returns of all its mines only 30 are productive, and these 30 only produce 5423 tons, or an average of 180 tons each, whilst the mines of Montgomeryshire produce 573 tons per mine, and those of Shropshire 972 tons per mine per annum. As a general rule, I may lay it down that 180 tons per annum will never make a mine pay; it might for a year or so in shallow workings, but for a lasting mine this output will never prove remunerative, and yet this is the average produce not of the mines of Cardiganshire, but of the productive mines, without bringing into the calculation those which do not produce anything. That this is in consequence of any scarcity of the mineral in the ground I deny, because with mines such as are on the borders of the county (Montgomeryshire) it is impossible to suppose that the ore-bearing stratum ceases at the boundary; besides, we know it continues; look at the run of ore-bearing ground which commences at Bronfloyd to the west, and runs through the Darrens, &c., yet this lode is practically unworked for miles before it enters Montgomeryshire, whilst thousands of pounds are expended on ready-made failures. If mining in Cardiganshire is ever to be remunerative to the investing public, and not merely a source of revenue to brokers, managers, and captains, it must be conducted on a very different system to that which has heretofore been pursued. It is not fair to put all the blame on the directors of mines; most of them are gentlemen utterly ignorant of the rudiments of mining, who place implicit faith on the specious promises held out to them by their captain, who only sees another month's pay in every month he can keep the mine open; of course there are honourable exceptions, but it would be invidious to mention them. The landowners are great losers by the discredit cast over mining; instead of large royalties they get little or none. I know one gentleman whose grandfather used to get 1200*l.* per year in royalty, the same estate now pays about 30*l.*

The remedy I would suggest would be this—the establishment of a company not for laying out large sums in purchasing old mines, but for taking up likely setts for nothing from landlords and laying out a sufficient sum to prove them, and then if successful, raising capital to work them separately; to make such a company a success, the majority of its board should be local gentlemen, who even if they were not conversant with mining would at least be on the spot. And as a sphere of operation I would suggest the great run of practically untried ground between the Darren Mines and Montgomeryshire, or the once prosperous Allt-y-Crib district, where there are some very productive north and south lodes, and I believe it was a lode with this bearing which produced the great deposits of ore in that mine more than a century ago. I have seen some splendid stones of ore broken from a private mine north of this property. But it is almost unfair to select one or two districts when the whole county teems with lead. History points to a time when Cardiganshire was alive with mining industry and wealth, and that too at a time when everything was dearer, and the means of transit almost *nil*. There is no reason why it should not be so again, and if those whose interest it is that it should be so will only put their shoulder to the wheel, it will be so. HARD TIMES.

[For remainder of Original Correspondence, see to-day's Journal.]

THE WILD DUCK, OR SPORTSMAN'S ARMS.

This well-known hostelry is situate about three miles to the south-west of Redruth, and about two miles from the "Nine Maidens," on the main road from Redruth to Helston. In former times it was surrounded by barren heaths and bogs, in which were found large numbers of plover, snipe, wild duck, &c.; hence the name of the hotel. Many of the miners who were employed in the neighbouring mines lived in the direction of the "Wild Duck," and often met there when returning from Redruth Market, and also on pay days, survey days, &c. We are, therefore, indebted to those social meetings for the following remarks. I may remark, however, that valuable discoveries have resulted from friendly discussions after a good dinner on a pay day in a public house, simply because all the pare do not meet together, except on a pay day or a survey day, and then if they divide their money behind a edge or an "old burrow," such a place is not likely to lead to friendly or useful discussion, but now they dare not look at a public house. We know that the adventurers in mines at the account day, after a good dinner, enter into most interesting statements and matters of detail as to the present and future of the mine; and during those discussions there is elicited very important information, and but for which, it is more than probable, that many a valuable mine would have been abandoned. Now, if it is of vital importance that the adventurers in a mine should meet every two or three months to discuss and regulate all matters connected with the mine, it is equally and absolutely necessary that pares of men should also all meet once a month in a comfortable room in order to discuss and decide on the best plan of future operations; at least, this is of vital importance for "tributers," for those men have to use their intellect as well as their hands, and it will be a sad day for Cornwall when those intelligent and enterprising men are "starved out," and driven to seek a living in a foreign country. It is all very fine to make rules and "Mines Regulations Acts," but it would be much better if our wise legislators would make an Act that would provide bread for our miners at home; they are not savages, and could be trusted as rational beings to meet socially once a month to discuss their private affairs as far forth as any of "H. M. Inspectors of Mines."

I must return, however, to Jan Temby's drawbridge roasted 'pon taties. The pare all met at Cousin Wills, as agreed, and just as they were about to begin dinner Uncle Jan Jewill said, "I see'd little 'Bold Hawk' in the kitchen; shall we ax'n to have a bit of dinner?" "Who is Bold Hawk," said Cousin Will? "Why, tes a nickname," says Jemmy Dowa; his right name is Henry Vessant, "and lor," says Jemmy, "every man in Stithians parish have a nickname except Peter Philp, and he is caal'd 'Tom Flop.'" "Bold Hawk" was asked in, and a right good dinner he had; and after all had finished and a dram passed round by way of "stopper," Bold Hawk said, "Well, landlord, I'm first-rate now, and feel so comfortable as if I was in a 'Love Feast,'" "And so do I," says Uncle Henry Treglen—"and they taties baked under such a great piece of beef is so good as the meat, and I do believe that I'm just so foud of taties as 'Bos'n Rowes pig.'" "And what about that pig?" asked Jan Temby. "Why," says Uncle Henry, "you have all heer'd of Mr. Woolf, the great engineer." "Oh, iss," all knowed Mr. Woolf well. Bos'n Rowe's house was near Mr. Woolf's kitchen garden, and Bos'n's pig was fond of getting in and eating Mr. Woolf's early taties. At last Mr. Woolf sent for Bos'n, and said, "Now, look here Bos'n, if you don't keep your pig out of my garden, I'll summon you before the magistrates." "I'm very sorry Mr. Woolf," said Bos'n, "but that ess the most exerordenary pig you ever heer'd tell of." "I don't care about that," says Mr. Woolf, "but I insist on your keeping your exerordenary pig out of my garden." "I tell ee again," said Bos'n, "there was never such a pig born as that pig." "And I tell you again," says Mr. Woolf, getting into a great passion, "if you don't keep away the pig I'll summon you." "Well," says Bos'n, "I suppose, Sir, you'll hardly believe it, but it is so true as the Gospel that if that pig had 500*l.* a year he'd spend it all in taties." The idea of a pig spending 500*l.* a year in taties so amused Mr. Woolf that he burst out laughing, and forgave Bos'n and his pig. "Well, men," says Cousin Will, "how is your mine looking?" "Why, it will hardly do for me to say much, I 'spose," says Jan Temby, "for there wor a great Inspector there last week, and I tell ee landlord, he must have fine eye sight if he can see any tin in some of the ends. I've seen strange capn's in our mine, and I caan't make 'un out at all, for look here sose, ours es a candly slottery old end, and we worken in un five minits after shifting a hole caan't see a blink of tin, but this strange capn will tell ee in his report that the 96 end es worth 10*l.* a fathom for tin, and go on fixin the vally from all the ends in the mine. Now, how can he or any man tell the vally of a thing he caan't see? Why, I wouldn't give a chow of tobacco for such report, and our own capn's can only tell the vally of the ends after the ground is spent, and the trade sampled, but becase the capn of a rich bal said so and-so, tes all Gospel, but ef a poor man, but twice so good a miner, told the truth, a would'nt do in no price." "I've often thought," says Jemmy Dowa, "that there must be something wonderful in a 'Duck Jacket.' I see'd Cousin Har T——r underground with a London gentleman the other day; he'd only ben capn a fortnight, and when I heer'd'n taliken to the gentleman I thought I should bust my sides loffen; he said this is very congenial ground for copper; the boy Tommy said he found that word in the *Mining Journal*, and that all new capns used it. Then he said the lode is all interspersed with ore: a month before a would say a brave stuffy old lode, and then for a keenly end—this is kindly ground. Why, I tell ee, comrades, this ess all owing to the 'Duck Jacket.'" Cousin Will here remarked that the more a man travelled, and the more experience he gained, the less would he think of his own abilities, "For," said he, "all men employed underground are called miners, and this is a great mistake, as there are pitmen, timbermen, tributers, tutworkmen, and various labourers. A tributer, therefore, is in all respects a miner. Pitmen and timbermen are in reality underground mechanics. Tutworkmen have a mechanical knowledge of breaking ground, but, correctly speaking, they are not miners—that is, skilled in the knowledge of discovering minerals. Many are tutworkmen all their lives, and have not an idea beyond it. While there are families and generations of pitmen and timbermen, and neither the one nor the other are acquainted with the nature and character of mineral veirs, lodes, cross cour-es, slides, heaves, flookans, &c., it is entirely out of their line." "I have known families of tutworkmen," says Jan Jewill, "generations of them, working in one district in a mine, and they knowed no more of the other districts than the walls of Jerusalem; and so from father to son, one after the other, you will see generations of pitmen and timbermen. A good old tributer and 'kitter' would'nt be a bit afeard of a capn made out of their ranks." "Well, sose," says Jan Temby, "what do ee say; shall we after this comfortable mitting all meet here again this day month?" This was agreed to. COUSIN JACK'S UNPUBLISHED M.S.

CORNISH PUMPING ENGINES.—The number of pumping-engines reported for March is 18. They have consumed 2171 tons of coal, and lifted 17,500,000 tons of water 10 fms. high. The average duty of the whole is, therefore, 53,500,000 lbs., lifted 1 ft. high, by the consumption of 112 lbs. of coal. The following engines have exceeded the average duty:—

Crenver and Wheal Abraham—Sturt's 90 in. ..... Millions	66·1
Ditto ditto —Willyams's 70 in.	79·0
South Condurrow—55 in.	53·9
West Basset—Grenville's 70 in.	53·3
Ditto —Thomas's 60 in.	57·1
West Tolgus—Richard's 70 in.	58·0
West Wheal Seton—Harvey's 85 in.	67·8

STEEL RAILS.—The Edgar Thomson Steel Company, at Pittsburgh, have rolled a steel rail of the extraordinary length of 120 ft. 2 in. The rail is of the section used by the Hartford and New Haven Railroad, 62 lbs. to the yard, and weighs 2480 lbs. trimmed. Some 8 in. were cut from the rail, which would have made the rail as rolled nearly 121 ft. The rolling of the rail occupied just five minutes. This is, if we remember rightly, the longest steel rail of heavy section ever rolled. This, with other rails of 97, 80, 60, and 30 ft., are intended for the Centennial. The company will also show some very fine Bessemer forgings, rail sections and test pieces, together with a number of twisted rails.—*Iron Age* (New York).

EPPS'S COCOA—GRATEFUL AND COMFORTING.—"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctors' bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us ready to attack wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly nourished frame."—*Civil Service Gazette.*

Meetings of Public Companies.

THE CHONTALES CONSOLIDATED MINING COMPANY.

The half-yearly meeting of shareholders was held at the City Terminus Hotel, on Tuesday,

The Right Hon. the Earl NELSON in the chair.

Mr. J. JAMESON TRURAN (the secretary) read the notice convening the meeting. The report of the directors (which appeared in last week's Journal) was taken as read.

The CHAIRMAN said he had reason to congratulate the shareholders upon the report from their new manager; the first letter sent the board from the mines impressed them rather favourably, but since then Mr. Danby had had plenty of time to examine the property to justify him in sending the report. Mr. Danby went out without any special instructions; he was left entirely free, and it was considered quite on the cards that a new man might have reported rather unfavourably. Therefore, they had been surprised to have such a thoroughly good report. What was more encouraging than anything else to him was that this report had come from a man who understood the management of the reduction works, because the tailings previously sent home had been assayed and showed a serious loss. The last assays were rather difficult to make, because in them there were certain particles of metallic gold visible. Mr. Danby, in his first letter, thoroughly explained the cause, but he (the Chairman) was afraid it showed that Mr. Smeddle was deficient in knowledge in the proper management of the reduction works. The directors were aware that this was not his *forte*, but they were afraid the result showed not only a want of knowledge, but also that a want of care had had a great deal to do with it. In his letter Mr. Danby showed that Mr. Smeddle in his anxiety to put more stuff through the mill had produced the effect of balling off the gold, and thus doing more harm than good. He should like that letter to be read.

Mr. TRURAN read the letter as follows:—

San Domingo Mill: I now come to a department which, I am sorry to say, is in a most unsatisfactory condition, and one which during the past month I have spent a good deal of time in thoroughly examining. The quartz after being broken from the several mines is tramroad to this mill, there dumped into the shoots of the spalling-floor. The large stones are then separated from the finer stuff by hand sorting, and reserved for crushing in the stone-breaker. The finer stuff is then fed into the stamps coffers, and then stamped, the slimes passing through gratings, the holes in which are about 1-18th in. wide, on to amalgamated copper plates. These first plates are about 5 ft. long and 4 ft. wide, inclined at an angle of 12° with the horizon. From these tables the slimes make a vertical drop of 2 ft., falling into a riffle, and then over another copper plate, and from thence over 12 ft. of blanket sluice, and from thence by a long launder into two tyes, which partially concentrates the sands, and from thence into a large pit close to the creek. The concentrated sands from the tyes and the little produced from the blankets, amounting altogether to about 15 tons per day, was treated in one arrastre, 12 ft. in diameter and 2 ft. deep; by this means, perhaps, at any rate no more than a quarter of the gold left in the tailings was extracted.

The CHAIRMAN said that sufficiently accounted for what the assay of the tailings had revealed. In consequence Mr. Danby had secured the tailings until a better treatment could be ensured. Mr. Danby suggested that they should send out some Wheeler's pans, to be used instead of the arrastras. They had had an introduction to a leading house in San Francisco, of whom they had ordered four of the best and most approved patterns of these pans, to be forwarded to the mines without delay. Mr. Danby asked for two mechanics to be sent out. The directors immediately advertised, and two good men were going out by the next mail. As to the mine generally, Mr. Danby seemed to entertain a favourable opinion, particularly of the Consuelo, at which, unhappily, operations had been suspended some time since; the Consuelo was nearest the Estrella Mill, and Mr. Danby intended attacking it through the Consuelo deep level, which was allowed to run together in Mr. Belt's time. Mr. Danby proposed to open that again. Another point was with regard to the value of the ore in depth—personally, he had always had an idea that the ore would not decrease in value in depth, although there might be more trouble in its extraction; and Mr. Danby committed himself to the same opinion, mentioning that at the present depth there was the same valuable ore as at surface, but there was greater difficulty to get the gold out. These were the points upon which the shareholders were to be congratulated, but, of course, their hopes were very much damped by successive failures. There had been a desire expressed by the shareholders that something should be done at the Pavon Mine. It would have been noticed that Mr. Danby thought particularly well of this mine, possessing all the elements necessary for successful mining—an immense lode, well located for economical working, and plenty of timber and water. It was impossible to attack this mine without more capital, and it was equally impossible for them to get more capital until they had proved by actual realised results that the present mines could be made to pay. Mr. Danby was perfectly confident he could make the mines pay, and the directors would then be in a position to obtain the necessary means to resume operations at the Pavon Mine. He then moved that the report be received and adopted.

Mr. PARKE PITTAR seconded the proposition. All he need add was that in a private letter Mr. Danby spoke most encouragingly of the future of the company.

The CHAIRMAN, in reply to a question, said one great reason for now attacking the Consuelo Mine was be cause of the great distance to tram the ore to San Domingo, which was done in the past working, but now that Estrella Mill is ready the ore will be treated at that mill. Mr. Danby says—"I have examined the surface workings of this lode, and have made careful enquiries. On the surface there are all the indications of a strong and rich lode, and the result of enquiries leads me to believe that the Consuelo is undoubtedly our richest mine; at any rate, it proved itself such years ago. This mine was, I am told by reliable authorities, producing rich quartz when it closed down. When the Estrella Mill is started, which will be during this month, I propose trying some of the quartz from the deep level in this mine." With regard to the Estrella Mill, Mr. Danby says—"This mill is nearly completed to run by steam-power. Fuel being cheaper at this point, I propose to run it during the dry season, and in the meanwhile complete the water race and wheel here, and repair the San Domingo Mill. I had hoped to have had this mill running before this, but I have been delayed by the carpenters. Everything is ready now but the tyes for concentrating the tailings and the roof of the engine house, which I estimate will take about a fortnight. I have, however, had steam up, and have every reason to believe they will be a success. There being no means here—neither will there be until either the arrastres or pans are erected—to treat the tailings, I intend saving them in the same manner as I am now doing at San Domingo. In conclusion, I consider that with an improved system of reduction the prospects of this company to be most encouraging."

The CHAIRMAN, in reply to further questions, said that Mr. Smeddle had returned to England, and that the directors had had an interview with him. Mr. Smeddle did not in any way explain the cause of his failure; his only explanation was he did his best. The board ventured to tell him that from some cause there had not been the same energy exercised as when he first took the management, and this he seemed to allow, for he did not at all make any explanation of what Mr. Danby had stated.

A SHAREHOLDER asked if Mr. Danby had foreshadowed what amount of capital would be required for the Pavon Mine?——Mr. HILL replied in the negative. As yet they hardly had a general notion as to its richness.

The CHAIRMAN, in reply to a question, said that the mining laws had been altered very much to the advantage of the company. As it was before anyone could denounce a lode in the midst of their property, but now six months' notice must be given, which gave the company ample time to work the lode if deemed expedient. He added that the lode in the Pavon Mine was supposed to be the continuation of the Javali lode on the other side of the valley. Their different managers, including Mr. Danby, seemed to think that the whole of the mines could be worked from a lower level at that mine, at the same time saving the expense of pumping. As to the reduction works, Mr. Danby had full knowledge of that department, and had given ample reasons to account for the present state of things; there was reason for the metallic gold going off—gold which could be seen in the tailings. He would ask Mr. Truran to read Mr. Danby's letter referring to this point.

Mr. TRURAN read as follows:—

Notwithstanding the generally bad condition of the mill I think in time it can be improved, and made to crush a good many more thousand tons of quartz. The system of treating the quartz, which I have already described, is good as far as it goes, and so long as the several processes adopted are properly attended to, and I am sorry to say I do not think the attention has been given which might have been, and no doubt an immense loss has been going on. The loss has been occasioned in a variety of ways. The gold here is disseminated through the quartz in a very finely divided condition, so fine that many times in the washes I have taken if the water had the slightest tendency to greasiness the greater portion of the gold would float on the surface. Now, in the mines here the veinstuff contains a large percentage of the ores of manganese, principally the oxides. When the latter mineral is washed the surface of the water will have a film resembling that caused by dropping a particle of coal tar in water. This will carry away a large portion of the gold by preventing the fine particles of gold adhering to the amalgamated copper plates, owing to the discolouration it causes. It is from the amalgamated copper plates most of the amalgam has been obtained. Then there is another and still more important matter in connection with the loss of gold. The mines have been, as I have previously stated, treated by the ton system, a good one in some districts, but not adapted to mines where the walls of the lode are softer than the lodes themselves. In the ton system it is clearly to the advantage of the miners to obtain as many tons of quartz or any other stuff per month as possible, so in rising, driving, or stoping, besides carrying the lode, they let the soft clayey material fall off the sides and mix with the quartz, and, of course, this finds its way to the mill.

To a certain, but only to a certain, extent is this evil remedied by deducting a number of tons from certain contractors at the end of the month. Looking, however, from a metallurgical point this far from remedies it, for the soft, sticky clay getting into batteries froths up and forms a thick slime, which must have carried away a large portion of our fine gold. I noticed one day the slime coming from the gratings as if it were soapsuds. It appears, also, that an endeavour has been made, and to a partial extent it has been successful, to rush through an immense quantity of quartz, with the vain expectation of increasing the product in direct proportion to the amount treated under proper conditions. This is absurd, for a mill of a given size has only a certain capacity for treating properly a certain quantity of a particular kind of quartz. Immediately that quantity is increased a proportionately extra loss takes place, for in crushing this extra amount the volume of water must be increased; the copper tables, the blanket, and other sluices will not have sufficient area or capacity to allow for the proper concentration of the increased volume of slimes. Now, the point to be remembered in order to successfully extract gold or any other metal or mineral from its matrix is to save a maximum percentage at the minimum of cost.

A SHAREHOLDER said that in the same office as the Chontales Company there were the Frontino and Bolivia; a short time since the latter was in quite as bad a condition as was now the former, but the property was divided into two companies, and each put under different management, and that had proved to be the commencement of their successful career. With reference to the Pavon Mine, he would propose that something of the same kind should be done there, and a new company started to work separately what appeared to be a most valuable mine.

The CHAIRMAN thought it likely some such steps would be taken, but it would be of no use to attempt to start another company before they could show some practical proof that they had a paying property. He believed with Mr. Danby they would be able to give that proof; he believed with only more care and the original perseverance shown by Mr. Smeddle they might have seen something of it now. They must first show clearly they had a property worth something before they could ask their own shareholders even to take shares in another company.

A SHAREHOLDER urged the desirability of impressing upon Mr. Danby the necessity of improving the reduction works, and employing the whole of the stamps.

A SHAREHOLDER also suggested the advisability of giving Mr. Danby a portion of the profits.

The CHAIRMAN did not consider that would be a very wise thing—there was a good deal to be said on both sides. There was a temptation to a man to pick out the eyes of a mine in order to make grand returns for a short time, necessitating again doing the necessary exploratory work.

The report was received and adopted unanimously.

A vote of thanks to the Chairman and directors closed the proceedings.

SANTA BARBARA GOLD MINING COMPANY.

The annual general meeting of shareholders was held, on Saturday, at the offices of the company, The Albany, Liverpool,

Mr. E. S. HOLLAND in the chair.

Mr. C. F. CARNE (the secretary) read the notice convening the meeting, and the minutes of the last; and the report of the directors was taken as read:—

The gold return has amounted to 35,877 oits., realising the sum of 15,260*l.* 3s. 11d., the working expenses, less interest, &c., received, being 1*l*,181*l.* 5s. 11d., leaving a profit of 307*8l.* 18s., almost the whole of which has been earned in the second half of the year. This result has been attained, it will be observed, by charging all sums expended on the new No. 4 stamping-mill and other new works, amounting in the aggregate to 141*l.* 4s. 7d., to the cost of the property, the same being, in the opinion of the directors, fairly chargeable to that account. The particulars of these new works are given in the statement from the manager.

From the sum of 307*8l.* 18s., at the credit of profit and loss, the directors recommend that the sum of 500*l.* be carried to a reserve fund, which they consider it desirable to form; and that a dividend of 1s. 3d. per share, free of income tax, absorbing 2500*l.*, and leaving a balance of 78*l.* 18s. to be carried forward.

The statistics of the operations at Pari for 1875, received from the manager, show that 10,771 tons of mineral were stamped, yielding 35,877 oits. of gold, or an average of 3·310 oits. per ton of mineral stamped. In the previous year 6933 tons of mineral were stamped, and the average produce was 3·414 oits. per ton. The total quantity of mineral raised from the mine in 1875 amounted to 13,624 tons, of which 2814 tons were rejected as refuse stone, and 39 tons remained unstamped on Dec. 31.

The development of the mine has been steadily proceeded with during the year, the lode continuing to look well. The mine captain reports at the close of the year—"It is with pleasure I have to state there has been a general improvement in the size of the lode, with every prospect of its continuing thus going south, and from such a good mineralised lode as this is at such a shallow horizon there is every reason to expect an improvement in quality at a deeper level; this will, I hope, be met with before another twelve months elapse." The sinking of the No. 1 shaft was commenced in the latter part of November, and 1 fm. in depth had been sunk to the close of the year. This being, in the opinion of the directors, the most important point in the mine, they look forward with great interest to what the lode may prove as a greater depth is reached. Since the close of the year the sinking operations have progressed satisfactorily, and Mr. Hilcke's latest advices are that the lode in the bottom of the shaft was about 8 ft. wide, with a very good mineralised appearance, at the further depth of some 3 fms. in all, sunk in January and February of the present year.

The continued favourable development of the mine has induced the directors, on Mr. Hilcke's recommendation, to authorise the erection of a further stamping-mill, No. 5, which can be constructed, they are informed, without heavy outlay. The present four stamping mills of the company are in good order, with the exception of the old No. 3 stamps which existed previous to the year 1862, and, owing to its age, will require to be reconstructed to a considerable extent. The addition of another stamping-mill will be of great service to the company to treat the larger quantities of ore that should before long be available through the sinking of the No. 1 shaft.

The workings during the year have been somewhat interfered with by deficiency in force, but this will be remedied in the present year, by the new houses for blacks now being erected by the company.

The operations at Pari have been conducted throughout the year by Mr. Hilcke, with an energy and ability that merit the approbation of the directors.

Mr. J. H. Dennis retires from the board in rotation, and offers himself for re-election. The directors propose an addition to the board in the person of Mr. C. F. Carne, the present secretary, who has been so long connected with the company. Mr. E. S. Holland has been appointed the managing director of the company, with the conduct of its general business.

The CHAIRMAN said,—The report and accounts already in your hands show that the company has at length reached a prosperous condition. The year's profit amounts to the substantial sum of about 3000*l.*, of which but a small portion was made in the first six months; the amount, therefore, of 2500*l.* that we propose to divide in a dividend of 1s. 3d. per share, although ostensibly equal to only 12½ per cent. for the year, is in reality equivalent to a 25 per cent. dividend, if we consider it as for the last half-year, in which almost the whole of the profits were earned. This I hope the shareholders will consider a satisfactory return. We further propose to carry 500*l.* from the profits to a reserve fund that we shall commence to form. This reserve fund can be applied to the purpose of renewing our stamping machinery or to other works from time to time, if found necessary. I may mention that the St. John del Rey Company have always, I believe, placed a portion of each year's profit to a reserve fund, the benefit of which fund was experienced when, owing to the accident in the mine, that company fell into a difficult position some years since. We intend to follow the example of the St. John del Rey Company in respect of a reserve fund, and to put aside a portion of our profits every year, if we are able to do so, and I think you will see the wisdom of our doing so. The profit of the year has arisen from the increased quantity of ore raised as compared with the previous year—10,771 tons, against 6933 tons in 1874, and not from any improvement in the produce of the ore, which continues to be much the same as before. The total cost, however, of returning this increased quantity of ore has not been more than in 1874, in spite of a higher rate of exchange—a fact which says much for the management in Brazil, and the economies introduced by our manager, Mr. Hilke. The directors hope and believe that this progressive increase in the output of mineral will continue, when the profits should also be larger, without calculating on any improvement in the quality of the mineral; it is, however, but reasonable to suppose that, as in the Morro Velho Mine, belonging to the St. John del Rey Company, the mineral from which is so similar in appearance to ours, the lode will improve in quality as depth is attained. The average yield of the mineral from the St. John del Rey Company's Mine in the years 1857 and 1858, from a much shallower horizon than is now being worked by that company, was 3·061 and 3·259 oits. per ton respectively, or less than our average of last year, while for the half-year ending Dec. 31 last the yield of the St. John del Rey mineral had increased, at the greater depth to which their mine is now worked, to an average of 10·638 oits. per ton; therefore, without being too sanguine, I think we have some ground for hoping that as our workings get deeper our lode will improve to some extent in a similar manner. The sinking of the shaft is being prosecuted with the utmost vigour, and good progress is being made. A large amount of stoping ground will shortly be available through the deepening of this shaft, and the output of ore should be considerably increased thereby. To meet this anticipated increase we are commencing the erection of a further stamping mill, No. 5, and intend putting the old No. 3 stamps in thorough working order. It is gratifying to know that we shall not be put to further outlay for water power to work the new mill, owing to the excellent arrangements made by Mr. Hilcke, whereby the Lavra Velho water-course can be utilised for the purpose. I hope we shall thus be prepared to deal with all the ore that can be raised for some time to come. As mentioned in the report, our operations have been interfered with by want of labourers; but the houses we are now erecting for the blacks will, it is expected, remedy this, and give the company a steady supply of labour for the future. In the last paragraph of the report you will observe that the directors propose the election of Mr. Carne to the board. Mr. Carne is well known to most of you, and, from his long connection with the undertaking, will be a valuable colleague to us. The speaker has been appointed managing director of the company, and will attend to many of the duties heretofore under Mr. Carne's supervision as secretary. I now beg to move that the report and accounts for the year ending Dec. 31 last be received and adopted, and that a dividend of 1s. 3d. per share be declared.

Mr. JAMES H. DENNIS seconded the proposition.

A SHARHOLDER asked how far the St. John del Rey Company's Mine was from the company's mine?——The CHAIRMAN said he was informed that it was about 40 miles distant.

Several SHAREHOLDERS then expressed their satisfaction with the report, which gave such full information.

The CHAIRMAN, in reply to a question from a shareholder, said that he fully expected an average of 1200 tons could be returned each month during the remainder of the present year, and this quantity of mineral could be crushed by the present stamping-mills. The mine would be able to furnish more ore as the workings were extended in depth.

The CHAIRMAN then put the resolution for the adoption of the report and accounts, and the declaration of a dividend of 1s. 3d. per share, which was passed unanimously.

Resolutions were then passed unanimously re-electing Mr. James H. Dennis a director of the company, and electing Mr. C. F. Carne a director of the company, also increasing the remuneration of the directors to 200*l.* per annum, and re-electing Mr. A. W. Chalmers the auditor.

The CHAIRMAN moved that the best thanks of the meeting be given to Mr. Hilcke and the staff at Pari for their services during the past year, which was seconded by Mr. A. P. Fletcher, and carried unanimously.

A vote of thanks to the Chairman and his colleagues closed the proceedings.

NERBUDDA COAL AND IRON COMPANY.

An extraordinary general meeting of shareholders was held at the London Tavern, Bishopsgate, on Tuesday,

Mr. S. J. WILDE in the chair.

Mr. F. R. BLUETT (the secretary) read the notice convening the meeting, which explained that it was called for the purpose of confirming the resolution passed at the general meeting of the company held on April 10, for the addition to the Articles of the company of an Article empowering the company from time to time to reduce its capital, to sub-divide or consolidate its shares, and making other provisions with reference to the capital and shares of the company.

The CHAIRMAN said that this was an entirely formal matter, it was simply to authorise them to do what they were going to do at another extraordinary meeting which would be held immediately after the business of the general meeting, to be held within the next few minutes, had been disposed of. He concluded by formally moving that the resolution be confirmed.

Mr. S. LLOYD FOSTER seconded the motion, which was then put to the meeting and carried unanimously.

Mr. BLUETT read the notice convening the 16th annual general meeting for the transaction of the general business of the company, including the declaration of a dividend and the election of directors and auditors.

The CHAIRMAN having put the question that the report and accounts be taken as read, and the meeting having agreed thereto, said that they had such a long and valuable report from Mr. Manning that it told them all that they could be told. They would see that the output of coal had been steadily increasing, though he wished it had increased more. They found, however, that in 1873 the output was 10,458 tons, and that in 1874 it was 13,842 tons, whilst in 1875 it was 18,841 tons of round coal sold, and not including either small coal or that used in the engines. He could not see why the increase did not now go on faster, seeing that they had got into better odour with the people there, and that the labour question was, as they hoped, now disposed of. The Great Indian Peninsula Railway contract expired on Jan. 1, and no new one had been signed. They were, however, going on under the old one, which, by the way, was never signed, and were negociating for a new one. Coal in Bengal was cheaper than with them, but there was a long distance to carry it, and the Chanda coal was far from them, so that they were enabled to compete with them, and the shareholders would understand that, although they might get a smaller profit per ton, it would be from a larger amount, so that there would be no cause for complaint. They were aware that Mr. Manning went out to India, and the directors and shareholders owed him much for going. They thought it well to get a gentleman—especially one acquainted with the locality—to go out, and as they had paid Mr. Manning but 600*l.* for his entire expenses he thought they had attained their object very cheaply. The new winning was going on well, and, as they believed, they were sinking to the bottom of the basin, and that the coal would, therefore, lie flatter, they might not have to sink so deep as would otherwise be necessary. Large bodies of water had been met with, but they had ample means to cope with them. They were at present down 50 ft., and had not yet reached the hard stone where tubbing would be unnecessary; they had, however, got through most of the worst part of the work. Next, as to the copper mine, they waited to see how it would pay altogether; they had sent over ore up to 10 per cent. produce for copper. Mr. Manning, while over there, had arranged lower rates on the Great Indian Peninsula for carriage to the port, and Mr. Lightly had reported favourably upon it, but he (the Chairman) was not very sanguine, and they did not mean to spend much money on it. The release of the company from the obligation to make iron was important. There was a certain tract between the railway and the river, and it was now arranged that whoever worked it would pay direct, and the Government would pay the company a certain royalty. The board and shareholders had long wished, when they got rid of the iron, that they should consolidate and reduce their capital, and this would be presently considered. The accounts had been audited, and they would see that the revenue account showed a profit of 7141*l.*; and, as they paid everything out of revenue, the accounts could not be cooked in any way whatever. He did not think the expenses heavy, considering how much had been spent on what might be called capital account. In the accounts they had put 600*l.* for royalty; the Government had since claimed 436*l.*, but he should explain that this heavy charge was a balance since the commencement; the 1036*l.* was really more than was fairly chargeable for the year. They had this year, for the first time, written off a certain amount for depreciation, and thought it would be better to do so every year. He then moved that the report and accounts be received and adopted.

Mr. MANNING had pleasure in seconding the resolution, and would take the opportunity of making a few remarks upon his recent visit to India. They had long been in the position that they had a presumably inexhaustible supply of coal, and a good demand, but they had scarcely been able to turn out 2000 tons a year. Owing to the vague and uncertain reports received, it had long been a subject of discussion at the board that one of the directors should visit the mines, and ascertain the true position of affairs, and he being the youngest member of the board, and having spent 17 years in India, mostly near the mines, it was arranged that he should go out. Their manager appeared satisfied with the gradual increase going on, but he himself was not so well pleased with the rate of progress. There was no doubt that Mr. Maynard had worked the mine properly, and had not taken away more coal than ought to be removed in opening out the mine, and he explained that all the capital called up having been expended, and all expenses being defrayed from revenue, he looked upon every rupee spent on what would usually be considered capital account as so much reduction of the sum available for dividend. No doubt many of the shareholders agreed with Mr. Maynard's view, and to some extent it was right, but they had one 60 and two 20-horse power, which had been lying idle, and he considered their truest policy was to spend a little money in erecting those engines; the outlay would not be more than 200*l.* or 250*l.*, and it would enable additional shafts to be worked. He directed that they should be put up, and they were, no doubt, now erected. They should understand that a native cannot get as much coal as an Englishman—in fact, he estimated one Englishman to be equal to four or five natives, so that they required four or five times the space of workings open to secure the same output. Labour had been the principal difficulty, but that difficulty was now removed. If the natives were well treated there was no difficulty in getting any number of them, and they were all now well satisfied, although a few years since there was some ground for complaint. As to the quality of the coal, there seemed to be a diversity of opinion, but he thought that the most reliable was to be obtained from those who used it. The engine-drivers considered that from 22 to 23 cwts. of their coal was equal to 1 ton of English or best Australian, which bears out the analysis that Warrora and their own was about 10 per cent. inferior to English, and confirms the opinion which they made. The analysis to which he referred was made by Mr. Walter Ness. As to the copper mine, he would not invest much money of his own in it; he did not not think it was a true vein. Mr. Maynard, however, had been ordered to sink to 50 ft., and send over the result; in 40 or 50 ft. sinking they had seen no copper, but the indications were good. As to the general appearance of their mines and property, he certainly did not expect to see things so favourable as they are, but they might be better. The mines were well and economically opened out, and they had machinery for the next 20 years, and he saw no reason why they should not long continue to pay satisfactory dividends.

A SHAREHOLDER enquired how much coal they were now raising?——Mr. MANNING said that 7100 tons were this year raised up to April 8, against 5100 tons up to the corresponding date of 1875.

Mr. HEATHFIELD enquired whether a demand could be had for an increased output?——The CHAIRMAN said that it could, and that to in the immediate neighbourhood.

Mr. MANNING said that Bengal coal could be got at Garrawarra for about 20 or 22 rupees per ton, which would make theirs worth 16 or 18 rupees.

The CHAIRMAN said they had had about 11 rupees per ton.

Major TESCHEMAKER supposed the prices would be lower.

The CHAIRMAN said they had hitherto obtained very fair profits, and if they enlarged their output they could afford to sell coal at a lower price without diminishing their total profit. There was no doubt that they would be able to sell all the coal they could get at a good profit. The item "exchange" in the accounts to which a shareholder had referred appeared large, but it was a mere matter of account, and as in India they both paid and received in rupees it made but little difference. To facilitate calculation and comparison they had always taken the exchange at 2s. per rupee, and put the difference therefrom as a loss or gain in the accounts; at present the price was 1s. 8d. to 1s. 8¼d. per rupee, which was very low, it was usually about 1s. 10d.

Mr. LIGHTLY had little to add to what he had stated in his report. In digging his trench, for it was nothing more, Mr. Maynard had in his opinion slipped aside from the vein. He regretted to differ from the director who had just spoken, but he believed it would prove a true vein, and that other and larger deposits would be found. Such large deposits of ore near surface were almost unheard of. It has all the character of their best copper veins in Cornwall, and if it had been found in that county any amount of money would be expended upon it; however, 20*l.* would prove whether it was worth while to continue it or not; that amount, he thought, ought to be expended.

The report and accounts were then unanimously adopted; upon the pro-

position of the CHAIRMAN, seconded by Mr. HAWKINS, the dividend of 5 per cent., making 7½ per cent. for the year, was agreed to; upon the proposition of Mr. CORBETT, seconded by Mr. MOUL, the retiring directors—Messrs. S. J. Wilde and J. Hawkins—were re-elected; and on the proposition of the CHAIRMAN, seconded by Major TESCHEMAKER, the auditors—Messrs. J. Waddell and Co.—were re-appointed, 21*l.* being voted as their remuneration.

The CHAIRMAN might mention that they had made some patent fuel from their small fuel, although at present they used all the small they had in their furnaces, or readily sold it, but as they might at some future time have a larger quantity they sent out some solution made under one of the 150 patents for agglomerating small coal, and had a sample sent home. Of course it would not pay to send out the solution if they were going to make the fuel regularly, but this was an experiment. He got the sample tried on two engines on the Great Eastern (English) Railway, and the engineers, who did not know from where it had been obtained, reported that it had been used, which showed at least that their coal could not be of such very bad quality.

At the Extraordinary General Meeting, held immediately after the general meeting, a long series of technical resolutions, prepared by the company's solicitor, were passed, the principal objects to be effected by them being—the reduction and consolidation of the capital of the company, now consisting of 250,000*l.*, divided into 250,000 shares of 1*l.* each, with 8*s.* paid up, to 150,000*l.*, divided into 50,000 shares of 3*l.* each, with 2*l.* paid up; the making of provisions for enabling the directors to waive the forfeiture of shares; and the alteration of the qualification and disqualification of directors and their remuneration, rendering the same partly contingent upon the dividends paid by the company.

The proceedings terminated with a cordial vote of thanks to the Chairman, directors, and officers, with special thanks to Mr. Manning for his visit to the company's works in India.

CONDES COMPANY OF CHILI.

The statutory ordinary general meeting of shareholders was held at the office of the company, London Wall, on Wednesday, for the purpose of transacting the ordinary business of the meeting,

Mr. LLOYD FOSTER in the chair.

Mr. JOHN E. DAWSON (managing director) read the notice convening the meeting.

The report stated that the board wished to draw attention to two points in the report from Capt. Noah Coward, which, at first sight, might appear unsatisfactory—1. That the lode in the bottom of the mine at the time he saw it was not looking quite so good as it was at the upper levels.—2. That owing to the cold the mine could not be worked more than six months in the year. The board have appended a footnote to Capt. Coward's report explaining this latter point; and with regard to the question of the value of the lode in the bottom of the mine, the following extracts from a letter received on Thursday last, the 13th inst., from Mr. H. S. Phillips, entirely remove what might otherwise have been considered an unfavourable feature.

Extracts from letter dated Santiago, Feb. 28, 1876—When he (Capt. Coward) visited the mine the deepest shaft did not show anything very favourable, but owing to a new discovery made on the surface he considered that the importance and richness of the ore would compensate for the poorness of the other. On the 17th a most important change took place, and the captain of the mine was so elated with the appearance of the bottom level that he came himself with the samples. I at once assayed them, and found them to contain 62 per cent. lead and 110 ozs. silver; the lode 1 metre wide, and soft ground. The last letter I have from the mine is dated 24th inst., in which he, the mine captain, says—"The level No. 15 improves daily in width and abundance; I am working it day and night. I hope in two or three days to continue the shaft. All the rest of the levels more or less without alteration. The new workings on the surface improve notably, and if the samples of the 'smalls' now sent you give the ley I anticipate I shall be enabled to send forward a remittance of ores of far superior ley to what the Isolina is supposed to give. The pile of ores increases with extraordinary rapidity, and all the troops you can send will make but a small impression on it." On the 13th of this month the mining captain sent me down samples carefully taken from the different ores he had taken out from the day he received the mine up to that date. The samples were three—No. 1, for immediate shipment, 3248 quintals, gave 60 per cent. lead and 62 ozs. of silver; No. 2 smalls, 8864 quintals, gave 60 per cent. lead and 61 ozs. of silver; No. 3 inferior, 2048 quintals, gave 60 per cent. of lead and 55 ozs. of silver; 14,160 quintals in all. The two last not assayed for lead. Taking into consideration the days that have been lost in arranging the working, sending provisions, &c., the foregoing result will show you what can be done; and according to the accounts sent down of the expenses up to that date, including salaries and provisions, the cost of each ton of extraction has not been over $15 per cajon of 64 quintals=5·25 per ton of 2240 lbs.=1*l.* sterling per ton. The captain of the mine further states that he intends working day and night in the best levels, and that the produce this month will be superior in quality and quantity to the last. You will please bear in mind that all this ore has been taken out following up the levels, consequently the mine contains to-day upwards of 20,000 quintals of ore more than when it was inspected by Mr. Coward; and at the expiration of this season (say the middle of April) it will, if the mine continues as at present, contain upwards of 40,000 quaiutals=2000 tons more than when purchased, less the quantity shipped this season.

Shipment of Ores: I have already advised you of the difficulty of getting troops at this late season, but owing to a considerable rise I have made in the freights I have succeeded in securing more than could have been expected. Indeed, I have spared no expense (and this out of my own pocket) to send forward a good remittance. I have already received here, and have in store ready for shipment, upwards of 2000 quintals of excellent ore, No. 1, and every day the troops are increasing in number, so that I may expect to have 8000 quintals ready in all next month, which I trust will include 100 tons of the rich ore newly discovered, and which I have given orders to have sent apart. The adit continues with activity, and shall be worked during the winter. From Jan. 3 to Feb. 13 they advanced 14 metres—2 high and 1 wide. The number of metres advanced in the workings of the Isolina up to the 13th of last month were 179, so that in this distance quantity of ore remaining is in proportion. Men occupied 82, including every one. In fact, everything goes on satisfactorily, and the property has so increased in value during the last month, owing principally to the intelligence and activity of the captain of the mine, that the company ought to be satisfied, and had I been enabled to cash the drafts I was authorised to draw I should gladly have spared no expense to send forward satisfactory proofs of the truth of my assertion; as it is I have personally sacrifice no sacrifice to forward the company's interests.

The Establishment of Corral Quemado (Smelting Establishment): I have had an inventory taken of this property, and which will be handed over on June 30.—Assays: As promised in my last, I have the pleasure of advising you of the result of the assays I have made during the last few days—No. 1, smalls from the new working on surface, 95 ozs. silver and 48 per cent. lead to the ton of ore; No. 2, ore from the same, 106 ozs. of silver and 60 per cent. lead to the ton of ore; No. 3, the 15 *fm.* level, from bottom of the mine, including smalls and a fair sample of lode, 110 ozs. of silver and 62 per cent. lead to the ton of ore. No. 4, metal supposed to be poor and thrown away, 32 ozs. I may here mention that when the Messrs. Perez worked this mine they had not competent and experienced men in charge, and that a very large quantity, I may safely say 1500 tons, of ore were thrown away, which can be readily saved, and which will not give less than 60 ozs. to the ton for silver.

The directors have little doubt that a careful perusal of the foregoing, in conjunction with Capt. Coward's report, will prove as satisfactory and convincing to the shareholders as it has been to the board.

Under date March 13, Mr. Phillips advised—Last 15 days actively employed getting troops to bring down ores from mines. Again raised freight as a fresh inducement. Weather fine, and will be able to work till middle April at least. Mine captain instructed not to reduce men or stop work till obliged by the winter really setting in. Up to date only 120 tons of ore got down to Santiago. Several tons more in stations on the way. Many more mules occupied by end of month will have 300 tons, and hopes to complete 400 by middle of April, on which date I shall make my shipment. Included in this will be a considerable portion of ore of higher ley than the mine originally produced, which will be shipped separately.

The CHAIRMAN said this was only the statutory meeting called pursuant to the provisions of the Companies Act. As far as possible, the shareholders were already in possession of as much information as the directors. As it was the intention of the board to call the shareholders together as soon as Mr. Phillips arrived in this country, he (the Chairman) proposed to limit his remarks upon the present occasion. The company purchased the mines from Mr. Phillips, and a contract had been made to pay him 6*l.* 13*s.* 6*d.* per ton for the first year, Mr. Phillips undertaking to see the mines were properly worked. He then read the following extracts:—The directors had received a telegram advising the shipment of 300 tons of ore from this company's mines, dated from Valparaiso April 19, received in London April 26—"Three hundred shipped, half steamer Illimani, half Britannia." The Illimani is due in Liverpool on June 8, and the Britannia on the 23rd idem. He had never known nor heard of any company that within the space of four months of its incorporation had 300 tons of ore upon the sea. Upon a most careful calculation, that first shipment should realise to the company a net profit of certainly 2000*l.* (Hear, hear.) It was important to remember that the whole of this ore had been raised from the levels, leaving untouched the ore in sight. He could confidently state that there had been done in four months more than any company had ever accomplished before, and he could only congratulate the shareholders upon the prospects before them. This being the statutory meeting there were no resolutions to submit, but if shareholders wished to make any enquiry he should be glad to afford, if possible, the desired information.

Mr. GEORGE BATTERS (a director) said it must be very gratifying to the shareholders to find the directors had been determined to send out the ablest man they could find to take the management of these mines upon the termination of the agreement with Mr. Phillips. The agreement was that the mines should be worked by him for one year, Mr. Phillips delivering the ore free on board at 6*l.* 13*s.* 6*d.* per ton, the company paying freight to England. As the Chairman, in his clear and succinct speech, had informed them. Mr. Phillips had forwarded 300 tons of ore. It was satisfactory to find that one shipment had been forwarded by steamer, because in less than a month the ore would be realised, and its actual commercial value ascertained. Great caution was exercised by the directors—justly exercised by them—in completing the purchase of the property. Although it had occasioned the loss of a portion of the best season of the year in which large shipments of ore could have been made, the directors had wisely run the risk of losing a good bargain rather than complete a bad one. They sent out Mr. Noah Coward, who not only thought well of the mines, but advised that they should be purchased at the amount stipulated. Upon the previous reports being confirmed by Mr. Coward the company took possession of the mines, and it was unprecedented in the annals of the history of mining that in so short a period after taking possession 300 tons of ore had been shipped, and on its way to this country, and 760 tons at surface, waiting transport on the opening of the season. Thus there had been raised considerably more than 1000 tons, which would leave the company a profit of not much under 10*l.* per ton, or (say) a profit of 10,000*l.* in the brief space of time the company had possessed the mines. The whole of that ore had been brought out of the mine on men's backs, and sent down to Santiago on mules' backs. They could only look upon it as something wonderful, remembering the mines were unprovided with even a windlass, whim, or machinery of any kind; not even a pick was used, all that was employed being a native instrument in the shape of a long iron pole. When Capt. Seccombe took possession he would not allow the mine to be worked in so rude or barbaric a manner, but would at once resort to the best horse or mule whim, with the proper appliances to draw the ore to the surface. There was every reason to expect that 500 tons of ore could be monthly produced from driving the levels alone, without resorting to ordinary common mining means. This would leave them very nearly 5000*l.* a month profit. That calculation had been made before the new discovery on the side lode, where at the surface ore was being obtained producing 110 ozs. of silver per ton, and a richer course of ore than that worked on in the Isolina Mine. There were at least five other lodes that had only been opened upon to a small extent; nothing had been done upon them beyond meeting the requirements of the Chilian mining laws. The whole of those lodes were of the most promising character, and bade fair to be as rich as the Isolina or the new discovery. The facilities for working the mines were of the most extraordinary kind. A cross-cut would unwater all these lodes at a depth of 150 fms. under the deepest workings; a cross-cut 100 fms. deeper would cut seven known lodes which had been holding a well-defined character at the surface. It was no unreasonable calculation, therefore, that after Capt. Seccombe's management of the property had been fairly established 500 tons of ore per month would be returned. The directors intended to improve the roads, so as to use carts instead of mules, when they would be able to bring down five times the quantity of ore; in the meantime the ordinary means hitherto employed in the country would be continued, especially as there appeared no difficulty in bringing forward 500 tons per month, and there was no difficulty in getting shipping on the coast for 1000 tons per month, as thousands of tons of guano per annum were sent down to the coast from thousands of miles up the country above the mines. Capt. Seccombe had telegraphed he had met Mr. Phillips, and says he is perfectly satisfied with the value of the mines from the enquiries which he had made. Therefore, shareholders had every reason to be satisfied with the *bona fide* character of their property. For himself he was abundantly satisfied, and fully believed they had one of the best undertakings ever brought before the British public, and moreover introduced in the most modest way. (Hear, hear.)

Mr. SLOUS said the Chairman had stated that the 300 tons of ore now on its way would give a profit of 2000*l.*, but Mr. Batters had estimated a profit of 10*l.* per ton.

Mr. BATTERS, in reply to a question, said that it had been computed the cartroad would cost about 10,000*l.*; Mr. Phillips was of opinion the Government would pay one half the expense.

Mr. SLOUS had consulted a friend who well knew the country, and he said the directors had very much understated the Mule lode.

The CHAIRMAN said that Mr. Phillips was a very large shareholder in the undertaking, and had not yet even asked for the allotment of his shares. There was no royalty of any kind to be paid; Mr. Phillips held his shares the same as any other shareholder. The whole capital was 16,000 shares.

The CHAIRMAN, in reply, said that he had mentioned 2000*l.* as the round sum of profit, because they did not yet know exactly the cost of freight of steamers as against sailing vessels; and it was always better to understate rather than overstate. He quite agreed with Mr. Batters, but still, as the Chairman, he was bound to be more than ordinarily cautious. A mule load was about 2 cwts.; but when the road had been completed three mules would be able to take down 2 tons in one cart. The mines appeared almost unlimited in their wealth.—Mr. HILL asked what difference there was in point of time between a steamer and sailing vessel?

Sir W. SMITH (a director) said about six weeks against ten weeks.

Mr. HILL ashed when stoping operations would be commenced at the mines?

The CHAIRMAN said that would be left entirely in Capt. Seccombe's hands.

Mr. F. G. LANE asked when Mr. Phillips's agreement with the company terminated?—The CHAIRMAN: At the end of the year.

Mr. MARGETTS mentioned that Mr. Phillips had said that as soon as the cartroad was completed the transport of the ore from the mine to Santiago could be carried on regularly throughout the entire year.

The CHAIRMAN added that this point had been referred to by the directors in a note attached to Capt. Coward's report, and which stated that from information the directors had obtained from reliable sources it appears that the mines can be worked throughout the whole year, but that in consequence of the present road being only a mule track the ores cannot at present be transported from the mines except during six or seven months in the year. The construction of a road is in contemplation, and a large shareholder, who had considerable local influence, is in communication with the Chilian Government on the subject. He had informed the directors that he is led to understand the Government will gladly assist in defraying the cost. In the case of the Argentine Company's mines the Argentine Government paid the entire expenses of the construction of a road 70 miles long to facilitate the company's operations, and it is, therefore, not unfair to assume that the Chilian Government, which is far richer and always disposed to advance money for the development of the resources of the country, will do likewise. The road from Santiago to the Condes Mines is not much more than half the distance of that from San Juan to the Argentine Mines. It is estimated that the construction of the Condes cart-road would effect a saving of at least 2*l.* per ton in transport alone, in addition to which it is stated that five times the quantity of ore could then be brought down than can now be transported on mule back over the present temporary track.

Mr. STEVENSON proposed a vote of thanks to the Chairmun and directors; to the Chairman for the able and satisfactory statement he had made as to the condition and prospects of the mines, and to the directors for the care exercised in obtaining the fullest and most reliable information as to the value and capabilities of the mines before completing the purchase.

Mr. SLOUS seconded the proposition, which was put and carried unanimously.

The CHAIRMAN acknowledged the vote on behalf of his colleagues and himself, and assured the shareholders that no effort on their part would be spared to render the valuable property they possessed as successful and remunerative as possible. (Hear. hear.)—The meeting then separated.

UNITED MEXICAN MINING COMPANY.

The ordinary half-yearly general meeting of the proprietors was held on Tuesday last, at the offices, No. 3, Great Winchester-street Buildings, Mr. CHARLES MORRIS in the chair.

Mr. W. M. BROWNE (the secretary) read the notice convening the meeting.

The report of the directors stated the accounts of the old concern show an excess of outlay of $16,459, arising entirely from two causes—first, the accident in the shaft of Jesus Maria Mine, commented on in former reports; the second, the sudden depreciation in the price of quicksilver, which affected their stock on hand and parcels in transit to Mexico. In the exploration of the new concern the works have been carried on vigorously. The total outlay amounted to $33,823, but as $7253 were paid towards that expenditure by the original holders, the amount falling to the company's share was $26,570.

Finance: Of the fifth call of 2*s.* 6*d.* per share sanctioned at the extraordinary general meeting of proprietors, held on Feb. 4, and made payable on March 1 last, the sum of 4485*l.* has been received, leaving 709*l.* 12*s.* 6*d.* outstanding.

The concluding paragraph of the report states that on the completion of the communication of the two ends of the adit (which will be the longest of the kind in the district of Guanaxuato) works will be opened at once for the investigation of the large territory belonging to the undertaking. On so very important a subject the directors wished to add to their previous knowledge the best local information to be obtained, and, in accordance with the instructions given to their commissioner, they have received an elaborate and full report from a mining engineer of first rate standing and ability, who is intimately acquainted with the ground itself, and has correct information regarding other works going on in its vicinity. He, with some slight modifications, recommends the prosecution of the works on the plan which had appeared most advisable to the board. The most important is to advance as quickly as possible under the old mines of San Cayetano de la Ovejera and El Diamente towards the neighbouring mine of Meximora, which for some time has yielded, and is still being worked, in "good products." It is also recommended that the cross-cut of San Fernando be continued to the north-east, and that another cross-cut from the San Augustin shaft to the south-west be thrown out, with the object of trying the "system of veins which is known to pass through the Ovejera district, amongst which there are some of importance." The directors, in conclusion, observe that they had expected before this to be enabled to announce to the shareholders that some discovery of value had been made. They much regret their inability at present to do so, but whilst on the one part they admit frankly their disappointment, they think it incumbent on them, on the other, to remind the proprietors that the territory of San Cayetano is so vast, and so much mineral ground is contained in it, as may be seen from the plans and gathered from the quotations from the engineer's report, noted above, that the board feels convinced that the greatest hopes may be entertained that success will eventually crown the efforts of the company. To say more on the subject would be mere repetition of what their former reports have stated; at the same time, they wish the proprietors to recollect that what has always been looked upon as the most valuable section of the ground—that lying under the old mines of San Cayetano de la Ovejera and El Diamante, towards the Meximora boundary—is still untouched, and must be thoroughly explored.

The CHAIRMAN said that when he had had the pleasure of presiding at previous meetings he had had to move that the report and accounts be received and adopted, but on the present occasion he should be compelled to ask them to sanction the report in a different way, because since that report was issued information had been received from the manager in Mexico which necessitated an alteration in one of the paragraphs. In the report it stated that there were only about 8 metres of solid ground to drive through in order to effect a junction of the Frente de Santa Elodia to meet the adit. A day or two ago a letter was received from Mr. Hay, the manager, to the effect that instead of 8 metres to drive there were 73 metres to drive. Of course, that was a great disappointment. There might be two reasons given—one was that the adit might have turned a little, which would account for the difference, or there might have been some error in the calculations which were made; but the directors were not in a position at present to state really how the error had occurred. It had always been hoped that in driving this adit they would make some discovery of a commercial value, but up to the present time this had not been the case, although indications of ore had been met with. However, they must hope that in the 73 metres which still remained to be driven good paying ore would be met with. He moved that the report and accounts be received and adopted, with the correction he had stated.—Mr. GOLDSMID seconded the resolution, which was carried.

On the motion of the CHAIRMAN, seconded by Mr. WESTON, Mr. John William Williamson was re-elected a director.

On the motion of Mr. WESTON Mr. W. Adam was re elected a director.

Mr. WILLIAMSON acknowledged the re-election of himself and Mr. Adam, and said that every effort would be made by the directors to ascertain how the mistake in the calculation occurred. He pointed out that the error did no harm whatever to the mine, but simply delayed the time of junction. All the directors' anticipations as to the mine remained.

A vote of thanks to the Chairman and directors closed the proceedings.

THORP'S GAWBER HALL COLLIERY COMPANY.

A special meeting of the shareholders was held on Tuesday at the City Terminus Hotel Cannon-street. At the commencement of the proceedings the chair was occupied by Mr. W. H. DAUNT.

The SECRETARY read the notice calling the meeting.

The CHAIRMAN said that in consequence of the resignation of the late Chairman after the meeting which took place on April 7, at the London Tavern, he was himself asked to assume that position at the board, and although the youngest member, and one who had joined the board only nine months ago, he did not hesitate to accept the position because he felt he could render material assistance to the company in its hour of difficulty. The views expressed by Mr. Wilson and Mr. Jackson at the last meeting being very similar to those which he had always advocated himself convinced him that it was only necessary that they should meet amicably together in order to fix upon some future united course of action, with the view of avoiding litigation, which would be so injurious to the interests of the company. His first duty, after accepting the chairmanship, was to invite those two gentlemen to a conference, and he was happy to say they accepted the invitation, and on the previous day and on the previous Saturday those two gentlemen and himself spent several hours in considering the resolutions and alterations in the Articles to be submitted for the approval of the shareholders. He was happy to say they all arose from the meeting on the previous day in perfect accord as to the desirability of those alterations, and he hoped the shareholders would adopt them, because he was sure if they were adopted this company would be in a sounder and better position than it had ever been before. One of the resolutions to be submitted today was that the present board of directors should resign. Well, all his co-directors had already resigned, and, therefore, it only remained for him to tender his resignation, which he now begged to do, and in doing so he could only say that he hoped the future course of the company would be more prosperous and its management more satisfactory to the shareholders. He moved that Mr. Wilson take the chair.

Mr. DAUNT then retired from the chair, which was taken by Mr. C. H. WILSON, M.P.

The CHAIRMAN said they had heard from Mr. Daunt an account of what had passed since the meeting which was held some time since, at the request of Mr. Jackson and himself. Since then himself and Mr. Jackson had received a further satisfactory expression of the opinion of the shareholders by having a majority of the proxies sent to them for use, and to that fact he attributed the smallness of this meeting as compared with the meeting held at the London Tavern, and he considered that fact an expression of satisfaction on the part of the shareholders with the course which had been taken in the matter. (Hear, hear.) If that was satisfactory to the shareholders he was sure it would be most satisfactory to Mr. Jackson and himself that by negociation with the board of directors they had avoided all painful and disagreeable complications which might have arisen if those gentlemen had not met them in the way they had done. Mr. Jackson and himself felt it their duty, after the support which had been given them, that they must, at any rate, back up the position which they had assumed by taking such measures as they thought they were justified in doing by the implied assent of the shareholders. They had made it a primary basis of their negociations that the present board of directors should resign, because in that way the ground was cleared for any future course of action; and he ought to thank the gentlemen on the board for the courteous consideration which they showed to himself and Mr. Jackson in the negociations and consultations which had taken place. The company was in a position that the directors could not afford to waste any of the shareholders' money, and he could assure them that the feeling of himself, of Mr. Jackson, and the gentlemen with whom they had consulted, was that they must take some very decided steps to endeavour to retrieve the position of the company. (Hear, hear.) The capital was very large, and when to that was added the debt of the company they would see that it was a very serious amount to have to look forward to pay a dividend upon. If it could be done at all, he was sure it could only be done by using every possible economy, and they made it a condition that the London office should be closed entirely. There had been a large expense incurred in London, which his own experience taught him ought to be entirely unnecessary, and that expense alone would have enabled them to have made some sort of a dividend during the past year if it had not been incurred: and it would have been better for the shareholders to have received 1½ or 2 per cent. than have a few shares given them in the way of a dividend, as was the case at the last meeting. He was told it was the wish of the shareholders that they should receive the shares as a dividend; he could only say it was an extraordinary way of receiving a dividend, and as long as he had any connection with the company, or any voice in its guidance, he should strongly protest against such a form of dividend being gone into. He had never before heard of such a thing, and he did not understand how it could possibly have been done. Another difficulty arose; a certain number of gentlemen were settled upon to be proposed as directors, but there was some difficulty in getting gentlemen who could represent the company's interests in the district, not only to represent them commercially, but also men whose position and influence in every way would be most advantageous to the company. Therefore, at his own suggestion Mr. Dibb, of Barnsley, had been invited to join the board; at first Mr. Dibb would not consent, but he had felt it his duty to press that gentleman, and at last Mr. Dibb consented, and he had no doubt whatever that the shareholders generally would cordially endorse the action he had taken, and unanimously elect Mr. Dibb (Cheers.) He could not at the present meeting go into the commercial position of the company, but he might say he thought they were going to have a bad time to look forward to. He thought they could not expect anything for the present but a gradual fall in the price of coal, and if at the present price, they could not make any dividend, it looked to him that the prospects were not by any means good. In nearly all other districts the price of coal had fallen away, and in Cardiff the price of coal was almost as low as it had been for 20 years, and the same remark applied to Newcastle and other districts. Therefore there was no use in their deceiving themselves as to price, and what he had mentioned showed the necessity of economy in every direction. He believed the workmen read the reports of these meetings, and he would suggest to them to consider whether it would not be in their own interest, as well as the interest of the company, not to endeavour to hold out for such wages as could not fail not only to damage the interest of the proprietors of collieries, but also materially damage their own interest. It was evident, therefore, that every economy must be made, by closing the London office, and wherever there was any chance of saving money to the company it would be the duty of the new directors to study economy from every point. In conclusion, the Chairman moved "That the directors having resigned, a new board be and is hereby appointed, such board to consist of Mr. C. F. Jackson, J.P., Chairman; Mr. C. H. Wilson, M.P., Mr. R. Spence, Mr. G. C. Hassell, Mr. W. H. Daunt, and Mr. C. J. Dibb, subject to their being duly qualified."

Mr. JACKSON seconded the resolution, which was put and carried after a short discussion.

On the motion of the CHAIRMAN, seconded by Mr. JACKSON, the following resolutions were also passed:—"That the London offices be closed as speedily as possible, and that the company's offices situated at Willow Bank, in the township of Barnsley, be henceforth the registered office of the company in lieu of the London offices;" that the directors be, and they are hereby, empowered to retain the services of a competent independent accountant for the purpose of examining the books of the company, and making such reports to them as he may deem expedient;" that Mr. Kincaid having (subject to the approval of this meeting) agreed, in consideration of the sum of 300*l.* being paid to him, to cancel the agreement made between the company and himself on March 30 last, and to release the company from all claims and demands, if any, he may have against the company, the directors be, and they are hereby, empowered to pay such sum to him on his executing such a release as they may approve."

Several modifications in the Articles of Association were to have been proposed, but it was found that these modifications could not be legally proposed at the meeting, as specific notice of them had not been given; the special resolutions which were to be proposed will, with certain modifications suggested by the shareholders, be proposed for adoption at an extraordinary general meeting of shareholders to be held for these and other purposes on May 23 next.

A vote of thanks to the Chairman closed the proceedings.

WEST COMBMARTIN SILVER-LEAD MINING COMPANY.

A general meeting of shareholders was held at the company's office, Queeen-street, Exeter, for the purpose of electing directors, and other preliminary business. There was a large attendance, and Mr. JOSEPH PAGE was unanimously voted to the chair.

Mr. F. THOMAS (the secretary) read the notice and the minutes of the previous meeting which was duly passed. The reports of progress from the company's engineer, Mr. S. Mathews (who was present), and also from Captain Treweek, both of which were received as highly satisfactory.

Mr. MATHEWS, in answer to questions from several shareholders, entered into most interesting details and advice with regard to the erection of the necessary machinery in the meadow, and much information of a practical character was elicited.—A list of shareholders was then read, also a list of those eligible for directors, when the names of the following gentlemen were selected, proposed by Mr. BOBY, seconded by Mr. E. LEWIS, and carried unanimously:—Messrs. Edward Dipetall (chairman), Cleveland House, Exmouth; Samuel Gimblett, Edgill Villa, Crediton; Joseph Page, Elm Grove, Exeter; Alfred L. Kingdon, M.D., Combmartin; and William L. Halls, Brunswick House, Exmouth.

Mr. W. MILLS congratulated the company on the selection of directors; they had all been successful business men, which was, he considered, a guarantee that the board would be practical. He had been to the mine, and was of opinion they pos-

sessed a most valuable property.——The newly-elected directors thanked the shareholders for the compliment paid them, and after some other business a vote of thanks to the Chairman brought the meeting to a close.

COOK'S KITCHEN MINING COMPANY.

A three-monthly meeting of adventurers was held at the mine on Thursday—Mr. Walter Pike, the purser, presided; and there was a large attendance of shareholders. The accounts showed that the labour costs for the twelve weeks amounted to 2290*l.* 0s. 10d.; merchants' bills, 888*l.* 4s. 2d.; and six months' parish rates, 41*l.* 14s. 1d.; making a total expenditure of 3219*l.* 19s. 1d. The receipts were—for 40 tons of tin, 1652*l.* 11s. 4d., after deducting the dues, and 2*l.* 10s. 3d. interest received in respect of forfeited shares that had been restored; leaving a loss on the three months of 1564*l.* 17s. 6d., and a balance against the mine of 2202*l.* 1s. 3d.

The purser expressed his regret that this was one of the worst statements of account that had been presented to the Cook's Kitchen adventurers almost within his recollection, but there were various causes which had conduced to this unfortunate result. Perhaps one of the principal reasons was the falling-off in the supply of tin, for owing to the low price their tributors had not been able to get a living; more than two thirds of them had left the mine, and that, of course, had made a considerable difference in their returns of tin. But in the coming quarter this would be in a great measure remedied, because some new points had been opened and new winzes holed, and this would enable them to increase their returns. The prospects of the mine, too, were looking better in the bottom level. Dunkin's lode must now be very near the bottom of the shaft, and any discovery would soon turn their debit balance into a credit. Of course if the present price of tin continued there was not much hope of this; but they all believed that they must soon see an improvement, and if tin would only get up to 55*l.* or 60*l.* per ton Cook's Kitchen would be able to go on very respectably. (Hear, hear.)

Capt. JOSIAH THOMAS having read the agent's report, said the price of tin was now lower than it had been for the last 25 years. The tribute department had very much fallen off, owing to the extremely low price of tin, tin ground of low quality that could be profitably worked on tribute when tin was high having now to be left idle.

The PURSER informed the meeting that in consideration of the existing depression he had himself, as purser, together with Capt. Josiah Thomas and Capt. C. Thomas, agreed to a reduction of their salaries to the extent of 2 guineas a month, and the other agents 1 guinea a month. (Applause.)

The accounts were then passed, and a call of 10s. per share was decided on.

Capt. JAMES reminded the adventurers that at the last meeting the purser and manager were instructed to apply to Capt. Teague, of Tincroft, for the amount of arrears due from him upon the water charges, which he agreed to pay so far back as April, 1870. He wished to know whether they had done so, and if so what was the result?——The PURSER replied that Capt. Thomas and himself had had an interview with Capt. Teague, with the result that the latter had paid 83*l.* 15s. of the debt. There seemed at present to be some hesitation on the part of Capt. Teague to pay the remainder, but he thought if the adventurers would leave it in their hands for another three months they might come to a satisfactory arrangement.

The PURSER, in answer to a question from Capt. James, said he had credited 180*l.* of the debt, and there was 120*l.* more due. There appeared to be a question as to when the liability of Tincroft ceased. He believed that about six months ago Capt. Teague put in a lift to raise the water himself, and his (Mr. Pike's) own impression was that the debt would remain in existence up to that time.

Capt. JAMES was of the same opinion, and said he could not understand why Capt. Teague, more than any other person, should be quietly allowed to break through a binding engagement. The money had now been owing for three years, and if Capt. Teague would not pay it by fair means legal proceedings should be taken to compel him to do so.

The PURSER replied that of course if the money was owing it ought to be paid, but it was desirable, if possible, that litigation should be avoided between neighbours, and if the matter was left in the hands of himself and the manager for another three months he had hopes that it might be amicably and satisfactorily settled.——The Purser's suggestion was agreed to, and this concluded the business of the meeting.

NEW COOK'S KITCHEN.—A meeting of the adventurers of this mine, the operations of which have ceased during the last 18 months on account of the depression, was held on Thursday, Mr. W. Pike, the purser, presiding. That gentleman said the balance sheet was the same now as when they stopped operations. The merchants' bills owing were 271*l.* 8s. 4d., and they owed their bankers 789*l.* Against this there were certain assets, and the balance against the mine was 779*l.* 12s. 2d., and a call of 10s. per share would about wipe off this balance. It was considered to be perfectly useless to keep the mine still any longer, and that the best thing would be to go down and look for copper, which they knew existed there. All the necessary outlay had been made, and it was now merely a question of the working monthly cost. As soon as the mine was in fork they knew that they had copper ore in sight, and if good discoveries were made the working of the mine would not only be an advantage to themselves, but a great benefit to the neighbourhood.—Capt. Josiah Thomas said he considered this a very favourable opportunity for pumping out the water and putting the mine to work, which could be done at no great cost, and he conscientiously and strongly recommended that this should be done. It was unanimously resolved that the working of the mine should be resumed; a call of 10s. per share was made to pay off the debit balance, and Capt. William Thomas was appointed as agent at a salary of 8*l.* 8s. per month. The salaries of the purser and manager to be 2*l.* 2s. each per month.

WEST FRANCES.—A three-monthly meeting of adventurers was held, on Thursday, at the mine, Mr. W. Pike, the purser, presiding. The debits were 3130*l.* 15s; and the credits, for 67 tons of tin, 2738*l.* 7s. 1d. The loss on the quarter was 387*l.* 8s. 7d., and the present balance against the mine is 1548*l.* 16s. 6d.—The Chairman explained that although they had returned an unusually large quantity of tin the accounts still showed a loss, owing to the low price that was paid. If tin had been 60*l.* a ton the shareholders would now be receiving a dividend of 10s. per share. The mine was looking well, and it was not thought necessary to make a call, and if things only improved they would soon get rid of the debit balance. The accounts were passed.

EAST BASSET.—A meeting of adventurers was held at the mine on Thursday, Mr. H. L. Phillips, F.G.S., of London, presiding. The accounts showed that as the result of the last nine months' working there was a credit balance of the sum of 163*l.* 13s. 3d. On the recommendation of the Chairman it was decided to make a call of 12s. 6d, per share The last call that was made was 3*l.* 5s., and the Chairman now expressed a hope that no further call would be required.

NEW NORTH POOL.—The statutory meeting was held at the offices, last Wednesday, Mr. J. S. Easter in the chair. The Chairman explained the objects of the meeting, and the report by Capt. Vivian was approved.

[For remainder of Meetings see to-day's Journal.]

FOREIGN MINING AND METALLURGY.

There has been little improvement in the Belgian coal trade during the last few days. The sugar trade has, nevertheless, commenced making its arrangements for the ensuing season. Some manufacturers in the North of France have also begun to do business in Belgian coal, profiting from the exceptionally advantageous conditions offered to them. France remains the best foreign coal customer of Belgium, and several great French metallurgical companies have not ceased to lay in supplies in the Belgian coal districts. The general aspect of the Belgian basins has only varied very slightly. The extraction has been reduced as much as possible, so as to prevent an accumulation of stocks. Prices remain at a low level. Contracts are about to be let for the coal required for the hospitals and civil hospices of Paris for twelve months from July 1, 1876; the amount of the coal thus required is 16,500 tons. The affair has not escaped the attention of Belgian coalowners. The Belle Vue Colliery Company has been paying a second dividend of 1*l.* per share for 1875.

In the basin of the Pas-de-Calais coal quotations are stated to have exhibited a little more firmness, but at Paris the tendency has been rather downwards than otherwise, and some concessions have been made to purchasers. This state of things appears to be attributable to large deliveries which have been made to Paris of late from the departments of the Nord and the Pas-de-Calais. Advices from Bochum (Westphalia) state that since navigation has been re-established on the Ruhr and the Rhine, the demand for coal has sensibly increased in the district, and some of the collieries are consequently in full operation. Prices have exhibited, however, rather a downward tendency.

Large transactions continue rare in the Belgian iron trade, while orders of comparatively little importance appear, on the contrary, to be becoming more and more the order of the day. There has been a marked improvement in the demand for merchants iron and T iron; only small orders have, it is true, been received, but the rolling-mills have a sufficient current of orders to maintain them in full activity. Fine plates have been in good demand in Belgium; Russia has been taking them in considerable quantities. It is stated that a new company, which is in course of formation, will establish some important rolling-mills for plates at Huy; the most improved appliances are to be introduced in these works. A second set of rails is about to be laid down upon the Namur and Brussels Railway, as between Rhisnes and Mont St. Guibert. MM. Jacquain, engineer of the Cockerill Company at Liége, and Estourgis, of the Brussels Observatory, have left for the Transvaal Republic, with the view of procuring some mineralogical explorations in that State. The Berg and Mark Railway Company (Germany) is about to let a contract for a small quantity of steel rails.

The Committee of French Forgemasters reports an improvement in the market for iron made with mineral combustible, feebleness in the demand for fine iron, and a stationary state of affairs as regards steel. The committee expresses an opinion that a reduction in the duties imposed on foreign iron entering France would have the gravest consequences for French metallurgical industry. The Superior Council of Commerce appears to be of the same opinion; it is said to have decided in favour of the maintenance of the tariffs now in force. An announcement that a universal exhibition is to be held at Paris has been received with much satisfaction by the French iron trade; it is considered that the necessary buildings will involve orders for iron of some importance, while the exhibition will also, it is hoped, give an improved tone to affairs. Official returns with reference to the imports and exports of iron into and from France in the first quarter of this year, as compared with the corresponding period of 1875, show that the imports have increased 11,000 tons, or 23 per cent., while the exports have exceeded 6500 tons, or 15 per cent. The concern known as the Forges et Chantiers de la Méditerranée commenced the payment on Monday of the balance of its dividend for 1875, or 1*l.* 4s. per share. The Mokta-el-Hadid Magnetic Iron Minerals Company is also paying 1*l.* 12s. per share as the balance of its dividend for 1875.

Copper has maintained a good tone at Paris, and prices have slightly improved. Chilian in bars, delivered at Havre, has made 85*l.* per ton; ditto, ordinary descriptions, delivered at Havre, 83*l.* per ton; ditto, in ingots, 86*l.* per ton; English tough cake, delivered at Havre, 86*l.* per ton; and pure Corocoro minerals, delivered at Havre, 83*l.* per ton. Copper has also been slightly hardening in price at Marseilles. Upon the German copper markets few transactions of importance have been reported, and prices have ruled feeble. Transactions in tin have been comparatively limited at Paris. Banca has brought 88*l.* per ton; Straits, 77*l.* 10s. per ton; and English 78*l.* 12s. per ton. Quotations for tin have presented some feebleness at Marseilles. The Rotterdam tin market has regained rather more firmness. Banca, after having been done at 48¼ fls., has risen to 48½ fls., and at the last dates sellers refused to do business below 48¾ fls. Several sales of Billiton have taken place at 43¾ fls. The German tin markets have ruled very quiet. There has been a little more firmness observable in the Paris lead market, but a comparatively small business has been passing. There has also been no great amount of business done upon the German lead markets. Silesian zinc, delivered at Havre, has made 25*l.* 12s. per ton at Paris. At Marseilles the quotation for Vieille Montagne zinc in sheets has been 31*l.* 4s. per ton. There has been but few variations upon the German zinc markets.

We last summer gave an account of a circular which had been sent by the Bremen Chamber of Commerce to the German consuls abroad asking for information on the possibility of establishing a coal export trade from Germany. The idea has received much encouragement from the consuls, and reports have now come to hand which are said to be of very favourable character concerning the results of some experimental shipments of stone coal from the Ruhr fields to Iquique, in Peru. In pursuance of an arrangement between a Dusseldorf firm and some merchants and shipowners of Bremen, systematic shipments are now to be instituted. Committees of pitowners and shippers are also being formed, and representations are being made to the German admiralty and leading steamship companies to induce them to erect coal wharves at their Transatlantic stations.

BLUE TENT CONSOLIDATED MINING AND WATER COMPANY.

The ground owned by the Blue Tent Mining and Water Company is situated at Blue Tent, about 5 miles from this city, and consists of about 600 acres. The gravel is a part of the rich lead or ancient river channel on which the mines of Columbia Hill are situated, and the channel has also been traced to the extensive claims of Jacobs and Sargent at Quaker Hill. The gravel of the lead at the point worked in the mine at Blue Tent is 400 ft. in depth, and has been proved by numerous clean-ups the past winter to be of a very remunerative character The principal work now being done is on what is known as the South Yuba claim, into which a tunnel is run from the hillside below, a distance of 600 ft., and which is 100 ft. below the bed-rock in that claim. This tunnel will furnish an outlet for the tailings for more than five years work. The hole being washed out through the gravel has not yet got down to bed-rock, and much of the washing so far this winter has been of surface dirt, because it keeps caving down, yet it has all paid over 30 cents for each inch of water used. The mine has the best dumpage of any in this section—it being 750 ft. from the mouth of the tunnel to the bed of the South Yuba river below. Two nozzles are run on the South Yuba, one on the Blue lead and two on the Enterprise grounds. The water at present used is obtained from several ditches owned by the company, and they purchase 800 in. from the South Yuba Canal Company. They also own a ditch which is 30 miles in length, and cost $160,000. It was commenced by Tozer, the former superintendent, in 1874, but he only completed about 800 rods that season, besides some work on a tunnel.

Under the present management the work was again commenced in May, 1875, and was completed in October. There were 750 Chinamen employed on the works all last summer, and 250 white men. The ditch takes the water of the South Yuba river at a point about 200 vertical feet below the point where the South Yuba Canal Company gets its supply, and about the same height above where the Omega Water and Mining Company obtains its supply. There are 4½ miles of solid fluming at the head of the ditch, and a tunnel just below it of 1000 ft. in length. The ditch around the hillsides, where there is no danger of snow slides, was blasted into the rocks most of the way, so that during the past severe winter not a break has thus far been made. This method was more expensive, but it will prove most economical in the end. At one of those points 450 rods of the ditch cost $38,000 for construction. The ditch will carry 5000 in. of water as far as Omega, where it is expected 1000 in. or more will be sold. The balance, and all of it if necessary, will be run to the mines of the company. During the present season it is the intention of the company to erect extensive dams above the head of the ditch at different points wherever there is an unoccupied water-shed, so as to secure an abundant supply of water for the entire season. The snow on the upper line of the ditch is from 8 to 12 ft. in depth. Men are at work cleaning it out, and will get water to running in the course of two or three weeks. The company have expended, exclusive of purchase-money, over $250,000 for permanent improvements, and have not done yet, though it is expected the proceeds of the mines will pay for what will be done hereafter.

We used to get items about the mine, but since the present superintendent took charge he has been so engaged with his work that we have failed to keep posted until recently. Taking the excellent facilities for dumpage surrounding the mines, the depth, extent and richness of its channel, the means of obtaining an ample supply of water, and the easy character of the ground to be worked, we think all will agree that the property is a very valuable one, and for a long time in the future will continue to pay large and regular dividends to the owners. The company deserve success for the enterprise and liberality they have manifested in opening up the mines, and we feel confident they will achieve it to their entire satisfaction.

BIG BLAST.—A blast of 1000 kegs of powder was fired off in the Blue Tent Consolidated diggings on Tuesday last, which raised and loosened up ready for washing about 200,000 cubic yards of dirt. The bank was over 200 ft. in height over the part where the powder was exploded. A tunnel was run 120 ft., from which horizontal drifts were run 101 ft. one way and 59 ft. the other. The explosion raised the entire mass bodily to a height of 4 ft. It cost to do the work and buy the powder $4215·07. The execution was wonderful, and the blast was a perfect success.—*Nevada Daily Transcript* (California, April 9).

HYDRAULICING EXTRAORDINARY.—A dog fell into the bulkhead which feeds the hydraulic pipe in the Blue Tent Company's diggings in California the other day, and the next place he brought up was against the gravel banks several hundred feet away. He passed through the pipe a long distance, and made his exit through a 5-in. nozzle in a very elongated condition. He left no word how he liked the passage.—*Weekly Territorial Enterprise* (Virginia City).

THE ALMADA AND TIRITO CONSOLIDATED SILVER MINING COMPANY (LIMITED).

MINA GRANDE.

March 3, 1876.—We believe we are through the lode on the west side. We continued cross-cutting until we were in 5 ft., in solid lime, with veins of country spar; we have in all 20 feet of lode. In the north end it is getting more solid and more coppery, and the rise is also looking better. I believe as we rise and get to the north the lode will improve. The ore generally is very hard. In the Tunnel the ground is much the same as last week, and the same in the rise.

March 9.—In the Mina Grande 12 we are driving to the north, rising in the ore, and stoping the back of the cross-cut. In all these places the progress was slow during the last week, on account of the extreme hardness of the ground. It still preserves its course character, but as we get to the north we appear to be passing the large mass of lime that is here forced into the lode from the east, and I look for a more solid lode, and wider in that direction. The buddled ore from this lode is fully up to average.

March 16.—Mina Grande tunnel end is still changing to harder ground, and retains some spots of ore. We last week were 25 ft. short of Dios Padre boundary, and in four weeks I expect to cross should the ground not get much harder. In the 12 the lode still keeps very hard, and we have balls of lime and spar, sufficient to interfere very considerably with our output of ore. We have constantly employed in this lode as many men as can work to advantage at once, in order to open out the lode as quickly as possible, but nevertheless it is only being opened out slowly; the ground is bad to break apart from its hardness, and when broken only about one-third is sent out of the mine, the remainder being spar and lime. As anticipated, the lode widens to the east as we drive to the north, and we have also more water, which leads to the hope of better ground and more ore ahead of us.

March 23.—Mina Grande 12 fm. level improves as we drive to the north, and the end may now be said to be in solid ore, that is of a sufficiently good quality for all to go to the mill without assorting any waste. The rise is poor. We appear to be rising through a ball of lime in the lode. The tunnel end still continues to change, but not to get harder. We have spots of both black and green ore there.

April 29 (Telegram).—Mina Grande ground at present disordered by limestone in the 12 fm. level.

PROVIDENCIA AND TIRITO.

March 3.—The cross-cut east in the 32 is in lodey ground, plentifully mixed with spar. In the new east lode the back is rather improving, and the indications of the lode lengthening to the south improve also. In the drive from the Providencia cross-cut we have now ore sufficient for a stope of fair green ore. The back of the east lode, parallel to the new lode, is gradually changing to the green ore as we drive.

March 9.—In the winze I mentioned some short time since as being sunk in the small western vein of ore crossing the tunnel in the Tirito Mine we have stones of green ore worth taking out. As soon as we are down sufficiently deep to drive under the machinery with safety, should the ore continue, we shall commence to drive on the length of the vein. It is very small, not averaging quite 2 ft. in width, but as the ore is fair it will be a help to us, especially as it is very cheaply worked. In the cross-cut east in the 32 we are now getting into the limestone. I do not propose to stop this cross cut because we have touched the lime formation, as we can so far to the west of all ore found in the upper levels, after allowing for the angle underlie, and there is not, that I am aware of, any good reason for concluding before it is proved by cross-cutting to the east, that the lode does not go down as the limestone as suggested in one of your late letters. The green ore in the Providencia still holds.

March 16.—Tirito shaft is in easier ground; we sunk last week 3 ft. In the winze on the tunnel level in the west lode we are down 20 ft., and still have about 2 ft. of fair green ore. We are now preparing to drive north and south; as the ground is very easy we make headway in this place at small expense, which compensates for the narrowness of the ore. The cross-cut east in the 32 is now into very hard ground, fast changing into a limestone. In Providencia we have still sufficient green ore to keep up the quantity I estimated some short time since. The new east lode improves for copper as we rise, but still it is not solid. The improvement for copper has sufficiently increased to enable us to estimate for it in the last month's ore raised for export. The copper in the various classes varies from 5 to 10½ per cent.

March 22.—Underground there is little change to note for the week, but still it is an improvement as regards the ore in the new east lode, and in the upper works in the Providencia Mine, where more ore is visible. In the new east lode the ore improves as we rise, and we are now cross-cutting east a little south of the Tirito and Providencia boundary to intersect this lode should it continue more to the south than we have yet traced it. We are through the dead ground, or horse between the two lodes, and are now driving through spar with black ore through it, and have rather wet ground. Altogether the indications are promising. Tirito engine-shaft is getting into easier ground. Last week's sinking measured 3 ft. 6 in., which may be considered very fair work. We are now 25 ft. (on Saturday last) below the 32 fm. level. The 32 cross cut is still in the same ground.

Telegram received, April 29.—New east lode improving.

FOREIGN MINES.

ST. JOHN DEL REY.—Telegram from Morro Velho, dated Rio de Janeiro, May 1: Produce eleven days (second division of April), 13,500 oits.=8350*l.*; yield, 8·3 oits. per ton. All going on well.

DON PEDRO.—March 23: The ores have been extracted chiefly from the canoa and No. 6 shoots, only a small quantity having been taken from No. 8 shoot and the underlie lode. The average quality of the general work has been somewhat better. Eight boxes of work were extracted from the line in No. 2 stope, in the canoa, on the 21st inst., from a length of about 4 feet on the dip, and produced 398 oits. A sample taken on leaving showed low-quality boxwork. We expect to advance this stope another "set of timber"—say, about 4 or 5 ft.—before the end of the present month. The water which prevented the continuation of this stope in January has now almost entirely disappeared.—Drainage: We are still getting a great deal of rain, giving sufficient surface water for Dawson's wheel; sinking is being continued. A set of timber was completed in the sump shaft on the 22d inst. (yesterday), after which an iron rod at surface and the "rowl," breaking the angle at the bottom of Vivian's shaft, were changed; Dawson's wheel was idle two and a-half hours in consequence. The water in the sump was forked, and sinking resumed by three o'clock this morning.

FRONTINO AND BOLIVIA (Gold).—The directors have advices from their manager, dated March 12: During the month of February 1274 tons of ore were treated, producing 672 ozs. of gold; average 10½ dwts.; gold purchased from tributers 487 ozs.; making a total of 1159 ozs. This is valued at 2866*l.* 13s. 4d. Mine cost at Bolivia and expenses in London and Medellin, 958*l.* 18s. 4d.: cost of gold produced, 859*l.*=1817*l.* 18s. 4d.: leaving a profit of 1051*l.* 15s. In addition to the above cost 240*l.* has been expended on construction account. Looking to the fact that the dry season now prevails at the mines, and that until the engine at the Silencio Mine is erected that mine is unproductive, the directors think the shareholders are to be congratulated on the profits shown by the returns for the month of February. It will be observed that the total profit derived from the Palmichal Mine during February was $2993 (497*l.* 13s. 4d.), of which $365 (160*l.* 16s. 8d.) only belonged to the company. At the end of the present month (May) the lease of the mine will expire, and the whole of the profits obtained from it will belong to the company.

ANTIOQUIA.—The directors have advices from their manager, dated March 17: During the month of February 108 tons of ore were crushed, producing 24 ozs. of gold, or an average of 4½ dwts. per ton. The cost at the mines and in London and Medellin amounted to 317*l.* 13s. 4d.; the value of the gold obtained, 75*l.*: leaving a loss of 242*l.* 13s. 4d.

NEW ROSARIO (Silver).—Mexico, March 29: Second reduction of 330 cargas (49 tons) yielded 354 marcs (575*l.*) Third reduction of 340 cargas will be completed by first week in April. Estimated yield about 600*l.* Sending ore to the hacienda weekly: 667 weekly cargas dressed and ready for dispatch.

SANTA BARBARA.—Mr. Hilcke, Pari, March 26: Nothing had occurred in the mine during the past fortnight worthy of observation, the appearance and yield of the lode being about the same as in the previous month, and operations had been carried on as usual. The abundant rains which have prevailed would be very beneficial for the water supply during the approaching dry season.

MALPASO.—Cuthbert Druitt, March 18: The clean up made this day gave us $2000 (416*l.*) out of the first 25 or 30 boxes. I think this may be considered not unsatisfactory, being the result of only 500 hours run. We are going to put in about 10 more boxes, and shall also now effect the junction of the ditches. The upper part of the new ditch will not, however, admit of running water through it yet, but we shall be able to discharge a number of peons. It was chiefly on this account that we made the clean up to day. The run, of which the above clean up is the result, has extended from February 18 to March 18, during which time (502 hours) have been washed with a full head of water—560 in. The cost for this period (one month) is estimated at 250*l.*, and therefore the profit on this run will be about 150*l.*

MALABAR.—G. B. O'Reilly, March 19: We are making good and economical progress with our cut, and have a considerable body of pretty good gravel almost available for running off through the grade already obtained. The ground alluded to is the base of the hill R.S.S. 16.17. This hill appears to rest immediately over what we have always supposed to be a channel, and we have not yet seen the bed-rock. The small streak of very rich gravel, from which I got my prospects, dipped down below our sluice. I do not think as much of this channel as I did when we at first struck the dip of the bed rock, but still there is a decided indication of a channel here, and we were quite justified in inferring a favourable change when we got on and through this very palpable rim. Our new cut which comes in on the opposite side of the hill will bring us in about 20 ft. below the former sluice, and will enable us to empty out all this bottom we anticipate, and give us some returns. This washing can be effected on off days and nights whilst our cut is still in progress, and will not, therefore, delay the progress of the latter work. As soon as we have done with this hill, and our cut is finished (say) in two months more or less, we shall then shift our monitors and then run up to the eastern banks; this job will be rather slow and heavy owing to the innumerable rocks we have to blast up and move; but once through with our sluice, we have a great extent of ground before us of apparently fair gravel. It remains to be seen whether we can make this gravel pay, if we do the future of the mine is determined, and then we can think of going to further expense for monitors and pipe.

LUSITANIAN.—April 18: Palhal: Taylor's engine-shaft, below the 190, is being sunk in a lode 7 to 8 ft. wide, composed of quartz, stones of copper ore, and mundic. In the cross-cut at the 100 we have had a small branch, but we think we ought to have more, and therefore continue to drive.—Levels on Basto's Lode, west of Taylor's Shaft: In the 190 the lode is yielding 2 tons of ore per fathom. In the 180 the lode is yielding ¼ ton per fathom, and in the 170 1½ ton per fathom. The lode in the 150, east of River shaft, is 1½ ft. wide, and composed of quarts. In the same level, west of Taylor's shaft (and of the slide), the lode is still small, but in the last week we have seen some small stones of ore. The lode in the 90, east of River shaft, is 1 ft. wide, composed of country and quartz. In the 70 east nearly 1 ft. wide, containing good stones of lead, and in the 28 east 4 ft. wide, producing 2 tons of ore fathom. The lode in the 50, west of Taylor's shaft (and of the slide), carries a very regular wall, but is unproductive at present. The mill lode in the 70, east of River shaft, is composed of country and a little quartz. The counter lode at the 150, west of Taylor's engine-shaft, is 1 ft. wide, composed of quartz and stones of ore. We are engaged in cutting a trip plat at River shaft at the 28, and putting in tramroad in the level east from the shaft, which will be 226 metres long. At Carvalhal the lode in the 60, west of the cross cut, appear to be irregular, and without mineral to notice.

PESTARENA UNITED.—T. Roberts, April 26: District Val Toppa: At Zero level there is no change in the cross cut westward. The lode in the Intermediate level below Zero is producing at the rate of 10 tons of ore per fathom, worth about 15 dwts. of gold per ton. A drive under this level, north of winze, yields 2 tons per fathom, at 10 dwts per ton. The drive in the south end of the ground, under No. 2 level, on branches of new lode, yields 5 tons per fathom, at 9 dwts per ton. In the drive north of winze on the branches we have an improvement, the end now yielding 8 tons per fathom, worth about 9 dwts. per ton. The end south of fourth cross-cut, on branches east of new lode, yields about 3 tons per fathom, at 8 dwts. per ton. No change in the end of No. 3 level, driving south, on the great quartz lode. In the stopes we have a slight falling off. So far as gone this month we have had a very wet time, rain almost every day, and it is now making very much against the carriage of ore from the mine, owing to the bad state of the roads. The water in the Anza River rose so much that we had to shut off the water to keep the gravel out from the water course; yesterday morning it abated, and we have resumed milling, hoping for the remainder of this month to have a more favourable time.—District of Pestarena: The lode in new shaft is much the same as last mentioned. The lode in the 55 end north at Peschiera is small, and in the 33 north, on No. 2, poor. The driving of the 33 is suspended for the time, and we have commenced a rise behind the end, where the lode produces 2½ tons of ore per fathom. The lode in the stopes in the back of the 55 yields 2 tons per fathom. Fair progress is being made in opening the old 33 level, on No. 2 lode south, with a view to connect it with the new shaft by tramway.—Acquavite Department: The 55 end south yields now 2 tons of ore per fathom. The lode in the 23 end north is small at present.—Surface: On account of the continuous rains and snow which we have had in the past month at this district very little has yet been done towards our new outdoor work, but good progress has been made in the second department of mill house in erecting machinery for the six additional mills; the laying, shafting, and most of the gear-wheels are in their places, and flooring almost completed.

[For remainder of Foreign Mines, see to-day's Journal.]

HOLLOWAY'S PILLS AND OINTMENT.—When rheumatism becomes chronic, and as it were fixed in a limb or part, it is truly a terrible enemy to encounter. The joints often become stiffened and excessively painful when obliged to be moved or on exposure to changes of temperature, dampness, &c. Holloway's ointment exercises a wonderful effect in alleviating this torture, for by its use the blood vessels of the part have their tone restored, and the irritated and painful are soothed and calmed. It must be persistently and perseveringly used, for the disorder is a most obstinate one, and will not yield unless resolutely attacked. These remedies will also be found to be most useful in cramps and muscular spasms.

BLAKE'S PATENT STEAM PUMP.

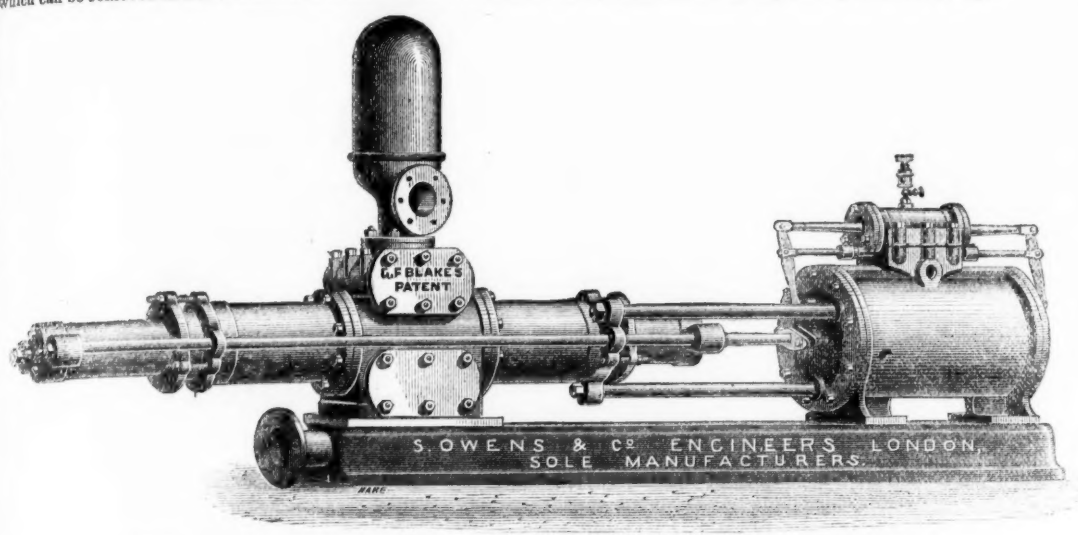
MORE THAN 8000 IN USE.

SOLE MAKERS FOR GREAT BRITAIN,

S. OWENS & CO,

Hydraulic and General Engineers, Whitefriars-street, London; And at 195, Buchanan-street, Glasgow (W. HUME, AGENT).

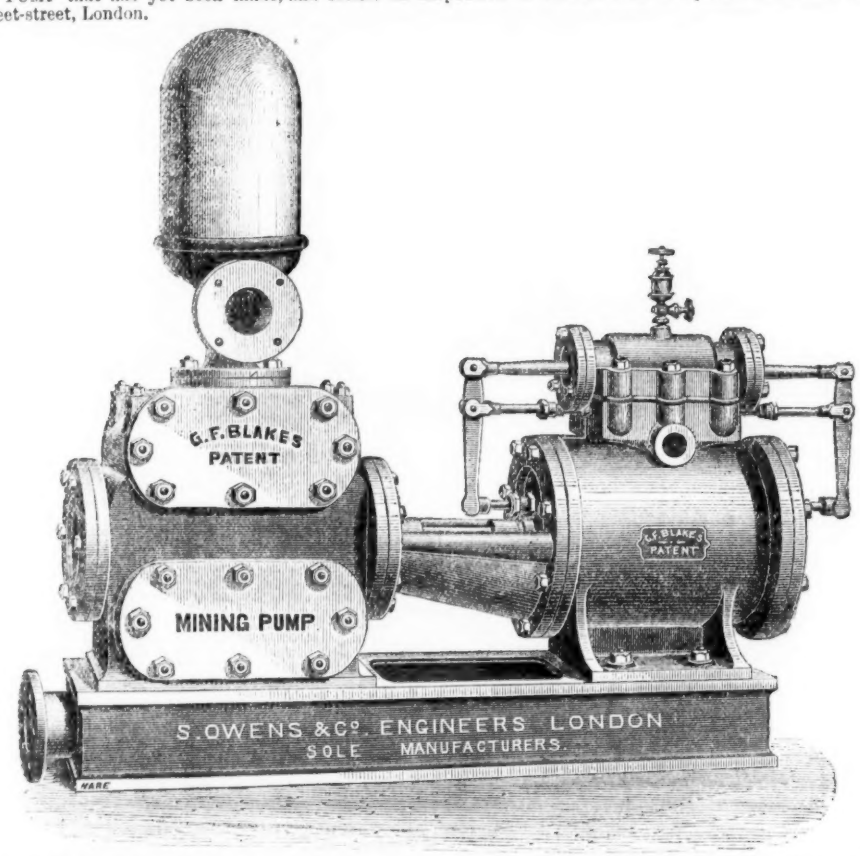
These PUMPS from their SIMPLICITY, RELIABILITY, DURABILITY, and ECONOMY are SPECIALLY SUITED FOR MINING PURPOSES, where large quantities of water require to be raised from great or medium depths with CERTAINTY. They are double-action in their construction, throwing a constant stream of water, can be made of any stroke to suit the space in which they have to work, can be arranged with any combination of steam and water cylinders to suit the pressure and lift against which it is desired to work them, are made of the very best materials and highest class of workmanship, and all working parts can be readily got at by any ordinary workman, and replaced if necessary by a duplicate part (all such being interchangeable) in the shortest possible time. For situations where gritty and sandy water has to be pumped the DOUBLE-PLUNGER PATTERN is recommended. Where space is limited the PISTON PUMP is better suited, a novel feature of which is the PATENT REMOVEABLE LINING, which can be removed in a few minutes and substituted with a new one, without disturbing any other part of the pump.



Blake's Improved Double-plunger Steam Pump.

S. OWENS AND CO.,

In placing the BLAKE STEAM PUMP before the mining world, believe they are offering the BEST, MOST RELIABLE, and ECONOMICAL PUMP that has yet been made, and solicit an inspection of various sizes in operation at their works, Whitefriars-street, Fleet-street, London.



Blake's Improved Mining Pump, with Patent Removeable Lining to Pump Cylinder,

Any combination of these Pumps may be had to suit circumstances. The following are some of the SIZES SUITABLE FOR MINING PURPOSES:—

Dia. of steam cylinders.. In.	12	12	12	12	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	24	24
Dia. of water cylinders.. In.	3	4	5	6	4	5	6	4	5	6	8	4	5	6	8	5	7	8	9	6	8
Length of stroke ..... In.	18	18	18	24	24	24	24	24	24	24	24	24	30	30	30	30	30	36	36	36	42
No. of strokes per minute..	30	30	30	30	25	25	25	22	22	22	22	22	22	22	22	20	20	17	17	17	15
Quantity in gallons per hour, approxmately ...	1440	2610	4200	5940	2940	4620	6600	2646	4158	5940	10620	2646	5160	7500	13260	4586	9000	12360	15660	6720	20

PRICES FOR THE ABOVE, OR ANY SPECIAL SIZE, AND ILLUSTRATED CATALOGUES FURNISHED ON APPLICATION.

PATENT CONDENSORS

Can be supplied for any size pump to effect a saving of fully 30 per cent. in the consumption of fuel, greatly increasing their efficiency

The Blake Pump will work under water, and as efficiently with compressed air as with steam.

BLAKE'S DONKEY PUMPS FOR FEEDING BOILERS KEPT IN STOCK.

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MUNTZ'S METAL.

ACCORDING TO THE NEW MINES REGULATION ACT.

BEST KNOWN MATERIAL.

MUNTZ'S METAL COMPANY (LIMITED),

FRENCH WALLS,

NEAR BIRMINGHAM

SOLID DRAWN BRASS BOILER TUBES

FOR LOCOMOTIVE AND MARINE BOILERS,

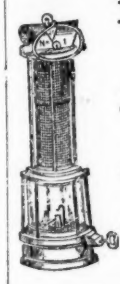
EITHER

MUNTZ'S OR GREEN'S PROCESS

MUNTZ'S METAL COMPANY (LIMITED),

FRENCH WALLS,

NEAR BIRMINGHAM.



MINERS' LAMP

AND

GAUZE MANUFACTORY,

Established Half-a-century.

JOSH. COOKE AND CO. J.C B TRADE MARK.

SAFETY LAMPS

MADE to DRAWING, DESCRIPTION, or MODEL. Illustrate Price Lists free, by post or otherwise.

VALUABLE TESTIMONIALS FROM EMINENT FIRMS.

MIDLAND DAVY LAMP WORKS,

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Specimens may be seen at the PHILADELPHIA EXHIBITION.

TO COLLIERY FURNISHERS, &c. &c.

AGENTS WANTED in all Mining Districts for the LANDAU MINERS' LIFE PROTECTING LAMP. For particulars, apply to Messrs. LANDAU, Coal Merchants, and Manufacturers of several important Inventions, 220, HIGH HOLBORN, LONDON, W.C.

STRONGLY RECOMMENDED! HIGHLY APPRECIATED!

THE LANDAU

MINERS' LIFE-PROTECTING LAMP,

The objects attained by the Patent Lamp are:—

1.—It is a perfect safeguard against explosion.
2.—Great brilliancy of light at a very small expenditure of oil.
3.—It is in no way affected by the strongest current of air in the mine.
4.—It is impossible for the miner to tamper with it with impunity.
5.—All the above improvements can be adapted by Messrs. Landau to any other lamps at present in use.

} Excelling all other Lamps.

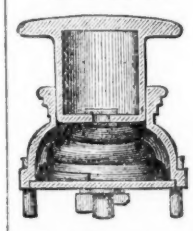
Important testimonials, confirming the above statements, will be forwarded on application by—

MESSRS. LANDAU,

COAL MERCHANTS AND MANUFACTURERS OF SEVERAL IMPORTANT INVENTIONS,

220, HIGH HOLBORN, LONDON W C

THOMAS TURTON AND SONS,



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CAST STEEL PISTON RODS, CRANK PINS, CONNECTING RODS, STRAIGHT and CRANK AXLES, SHAFTS and

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DOUBLE SHEAR STEEL, BLISTER STEEL, SPRING STEEL, GERMAN STEEL,

FILES MARKED T. TURTON

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Locomotive Engine, Railway Carriage and Wagon Springs and Buffers.

SHEAF WORKS AND SPRING WORKS, SHEFFIELD.

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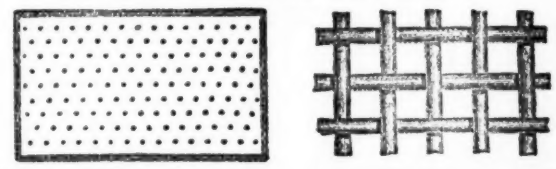
Where the largest stock of steel, files, tools, &c., may be selected from.

STRONG WIREWORK.



STRONG WIREWORK, the cross wires equally bent; also BEST STAMP GRATES, both of iron and copper, and punched copper plates. DITTO TUBBED. All the above promptly supplied at

W. ESCOTT'S MINING MATERIAL DEPOT,

TAVISTOCK, DEVON.

FOREIGN ORDERS PROMPTLY EXECUTED.

WILTON'S MATHEMATICAL INSTRUMENT ESTABLISHMENT, REMOVED from St. Day to A. JEFFERY'S, CAMBORNE.

W. H. WILTON begs to thank his friends for their liberal support for so many years, and informs them that (having opened business at Valparaiso) he has now declined business in England in favour solely of Mr. A. JEFFERY, MATHEMATICAL INSTRUMENT MAKER, CAMBORNE, whom he considers (having been an assistant to his father for several years) is in every way capable of creditably maintaining the good name universally awarded to Wilton's instruments.

A. JEFFERY

Respectfully begs to inform Mine Managers, Surveyors, Engineers, &c., the having purchased Mr. Wilton's business, and the very valuable acquisitions and appliances belonging thereto, he has enlarged his Mathematical Instrument Manufactory, and is prepared to supply THEODOLITES, DIALS, POCKET DIALS, LEVELS, TRAVERSING and PLAIN PROTRACTORS, CASES OF DRAWING INSTRUMENTS, MEASURING CHAINS and TAPES, ASSAYERS' SCALES and WEIGHTS, ENGINE COUNTERS, and, in short, every description of Instruments used in SURVEYING, MEASURING, MAPPING, &c.

Repairing in all its branches promptly attended to.

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ROYAL EXCHANGE, MIDDLESBOROUGH.

The IRON AND COAL TRADES' REVIEW is extensively circulated amongst the Iron Producers, Manufacturers, and Consumers, Coalowners, &c., in all the iron and coal districts. It is, therefore, one of the leading organs for advertising every description of Iron Manufactures, Machinery, New Inventions, and all matters relating to the Iron, Coal, Hardware, Engineering, and Metal Trades in general.

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PARIS EXHIBITION, 1867.

VIENNA EXHIBITION, 1873.

LONDON EXHIBITION, 1874.

CORNWALL POLYTECHNIC SOCIETY, 1867 and 1873.

TANGYE BROTHERS AND HOLMAN,

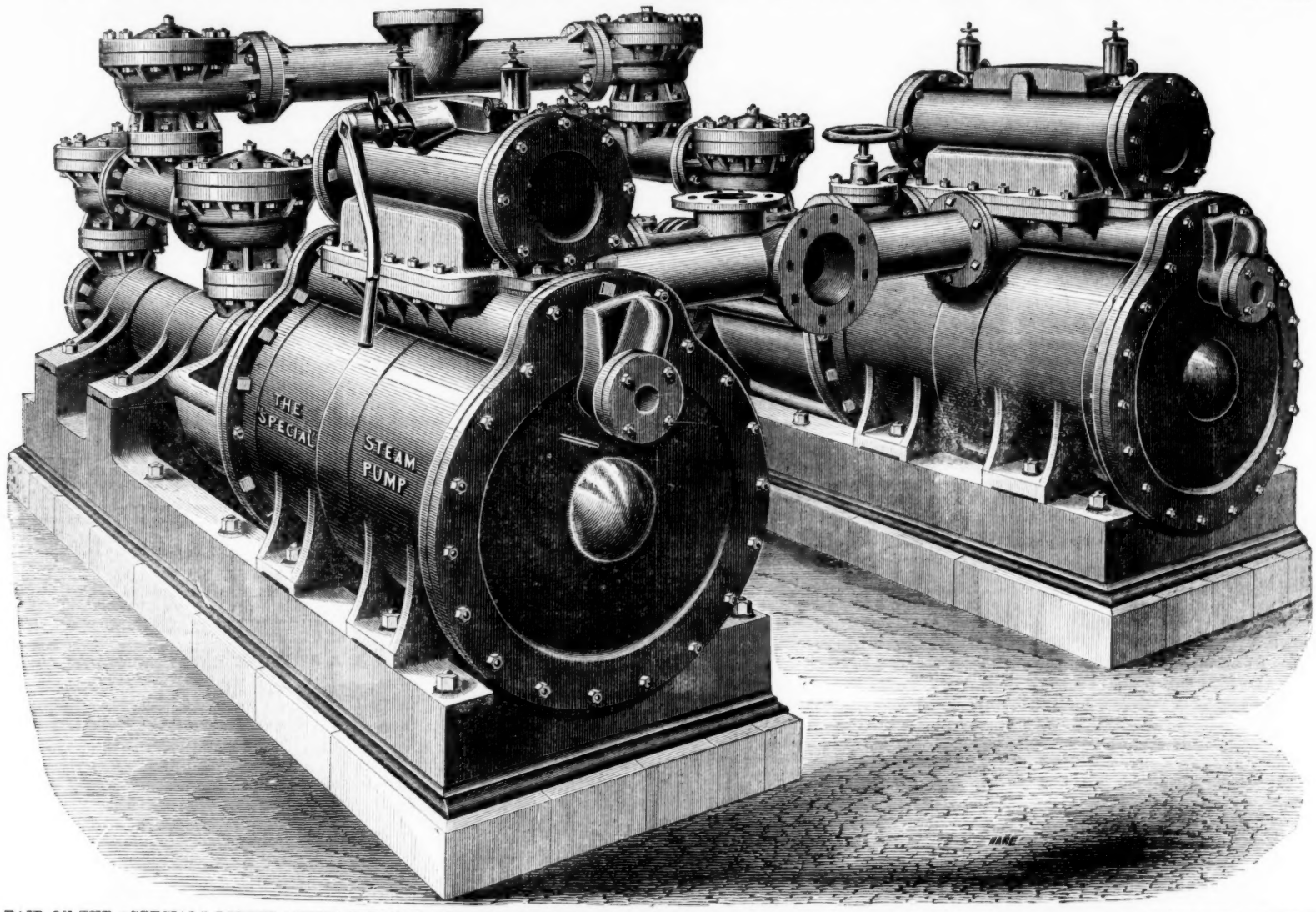
10, LAURENCE POUNTNEY LANE, LONDON, E.C.,

AND BIRMINGHAM. (TANGYE BROTHERS), CORNWALL WORKS, SOHO.

THE "SPECIAL" DIRECT-ACTING STEAM PUMP.

OVER **12,000** IN USE IN **ENGLAND** AND AMERICA.

SUCCESSFULLY ADOPTED IN A LARGE NUMBER OF MINES IN THIS COUNTRY AND ABROAD.



PAIR OF THE "SPECIAL" DIRECT-ACTING STEAM PUMPS SUITABLE FOR HIGH LIFTS IN MINES, SIMILAR TO MANY SUPPLIED BY TANGYE BROTHERS AND HOLMAN.

The following extracts from a letter, received by Tangye Brothers and Holman, from J. Bigland, Esq., dated Feb. 25, 1875, refers to a "Special" Direct-acting Steam Pumping Engine supplied four years ago to Messrs. Joseph Pease and Partners, for the Adelaide Colliery, Bishop Auckland. The engine is throwing about 8000 gallons per hour, 1040 feet high, in one direct lift:—

"The underground pumping engine at Adelaide Colliery is working night and day. It does its work satisfactorily, and gives us very little trouble. Some of the cup leathers which form the plunger packing have worked three months. The working barrel is in beautiful condition. The average duration of the valve seats is about eight months; they work and keep tight as long as there is a bit of them left. I expect the valves (Holman's patent) and the buffers will last as long as the colliery."

Extract from a letter received by Tangye Brothers and Holman from W. H. Eagland, Esq., dated Feb. 27, 1875, in reference to a "Special" Direct-acting Steam Pumping Engine supplied two years ago to the West Yorkshire Iron and Coal Company near Leeds, to throw 16,000 gallons per hour, 465 feet high in one direct lift:—

"It is at work night and day. Our man goes down to the pump twice a day (Ten A.M. and Four P.M.), to supply the tallow cups. After this it is left every day till he comes next morning, when he goes down again at Ten A.M. as before. The only repairs the pump has had for 12 months are one bucket, which had worked since we got the pump, and one valve seat, but no valve, so it has cost very little. Its first lift is 70 yards perpendicular, then the water passes up pipes for half a mile, ascending another 70 yards, and then another perpendicular pipe of 15 yards—total, 55 yards vertical height.."

Extract from the Official Report of the Commission of the German Empire on the Vienna Exhibition of the 1873, treating on Pumping Engines:—

"Contrary to these older pumping engines exhibited, there is now nearly everywhere the opinion established that the ("SPECIAL") pumping engines placed underground, which are made on A. S. Cameron's principle by Messrs. Tangye, are preferable to all. They do much duty combined with great compactness. They dispense entirely with the troublesome rod arrangement, giving often rise to stoppages, so that they will be applied shortly to a great extent, and are already in use in many localities. There is no doubt that this is in every respect practical system will command a general adaptation."

200 SIZES AND COMBINATIONS OF THESE PUMPS ARE NOW MADE.

The following are a few of the Sizes for High Lifts in Mines:—

Diameter of Steam Cylinder .....In.	7	8	9	9	10	10	12	12	12	14	14	14	16	16	16	16	18	18	18	18	21	21	21
Ditto of Water Cylinder .....In.	3	3	3	4	3	4	3	4	5	4	5	6	4	5	6	7	5	6	7	8	5	6	7
Length of stroke.....In.	24	24	24	24	36	24	36	36	36	36	36	36	36	36	36	36	48	36	36	36	48	48	36
Gallons per hour approximate	1830	1830	1830	3250	1830	3250	1830	3250	5070	3250	5070	7330	3250	5070	7330	9750	5070	7330	9750	13,000	5070	7330	9750
Height in feet to which water can be raised with 40 lbs. pressure per sq. in. of steam or compressed air at pump	325	425	540	300	665	375	960	540	345	735	470	330	960	615	426	312	775	540	400	300	1058	740	540

CONTINUED.

Diameter of Steam Cylinder .....In.	21	21	21	24	24	24	24	24	26	26	26	26	26	30	30	30	30	30	32	32	32	32	32
Ditto of Water Cylinder .....In.	8	9	10	6	7	8	9	10	7	8	9	10	12	8	9	10	12	14	8	9	10	12	14
Length of stroke.....In.	36	36	36	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
Gallons per hour approximate	13,000	16,519	20,000	7330	9750	13,000	16,519	20,000	9750	13,000	16,519	20,000	30,000	13,000	16,519	20,000	30,000	40,000	13,000	16,519	20,000	30,000	40,000
Height in feet to which water can be raised with 40 lbs. pressure per sq. in. of steam or compressed air at pump	413	326	264	960	700	540	427	345	827	633	500	405	282	840	665	540	375	275	960	758	625	426	313

PRICES OF THE ABOVE ON APPLICATION.—FOR SIZES AND PRICES OF PUMPS FOR LOWER LIFTS SEE SEPARATE LIST.

HOLMAN'S PATENT CONDENSER will be found a great acquisition to all kinds of Steam Pumps, as not only is the exhaust steam completely condensed, and the annoyance from same blowing off entirely got rid of, but a vacuum is obtained in the steam cylinder saving from 20 to 50 per cent. in fuel, and increasing to a considerable extent the economy and efficiency of the Pump.

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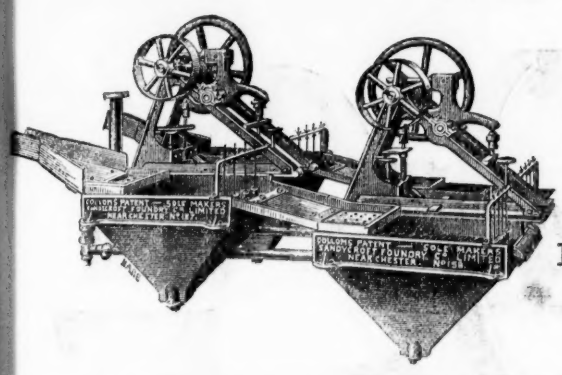
PATENT IMPROVED ORE WASHING & DRESSING MACHINES

THE SANDYCROFT FOUNDRY & ENGINE WORKS CO. (LIMITED), NEAR CHESTER

LATE THE MOLD FOUNDRY CO. (ESTABLISHED 1838).

SOLE MAKERS IN GREAT BRITAIN.



HUNDREDS IN USE.

FULL PARTICULARS,
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Will supply Designs, and all the necessary Plant for laying out Dressing Floors; also

MANUFACTURERS OF EVERY VARIETY OF

MINING MACHINERY

PUMPING & WINDING ENGINES,
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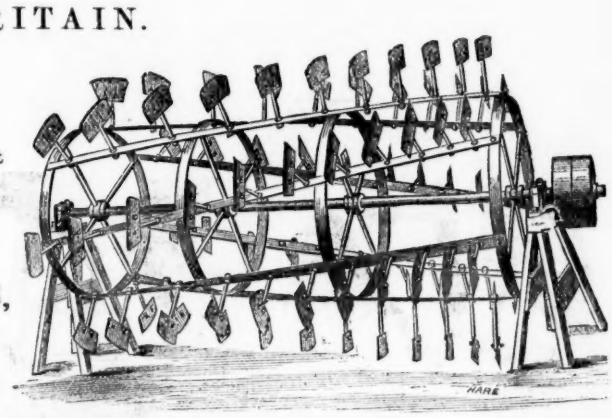
&c., &c.



COLLOM'S PATENT AUTOMATIC ORE WASHING MACHINE, working at the following and many other Lead, Copper, Blende, and Tin Mines:—Great Laxey, Cape Copper, Pontgibaud, Linares, Alamillos, West Tolgus, Lisburne, Minera Halvans, Snailbeach, &c.; and also at Messrs. Vivian and Sons' Works, Swansea.

PATENT IMPELLER, OR KNIFE BUDDLE, in use at the following and many other Lead, Copper, Blende, and Tin Mines:—The Van, Roman Gravels, Tankerville, Ladywell, Lisburne, East Black Craig, Old Treburgett, Penhale & Barton, Bog, Linares, Fortuna, Alamillos, Minera Halvans &c.

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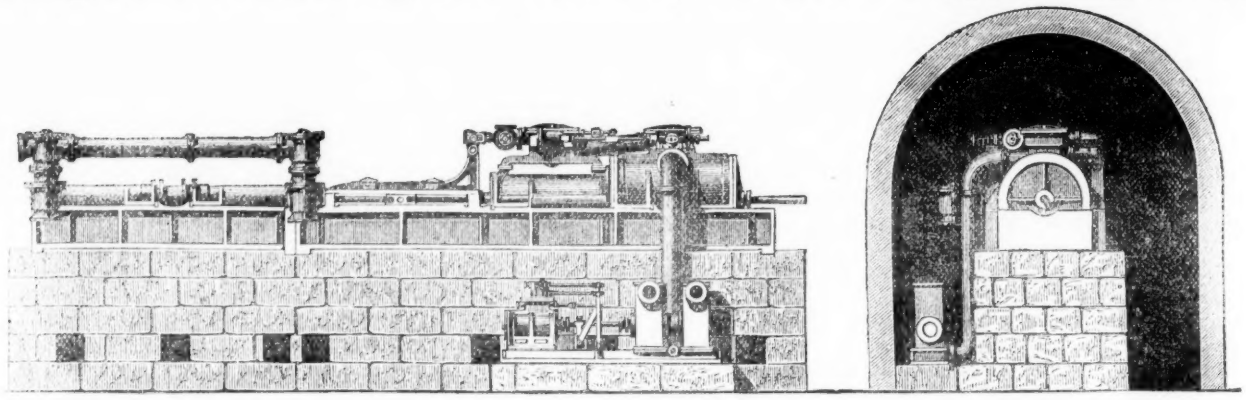
MAKERS OF

The Differential Pumping Engine, Hydraulic Pumping Engines, Cornish Engines, Differential Blowing Engines, Compound Rotative Engines, the Separate Condenser, Hydraulic Machinery, Mining Plant of all kinds, and Machinery for Water Supply, Irrigation, &c.



THE COMPOUND DIFFERENTIAL ENGINE AND FORCE PUMPS,

With Separate Condenser, as applied Underground, forcing 700 gallons per minute 920 feet high.

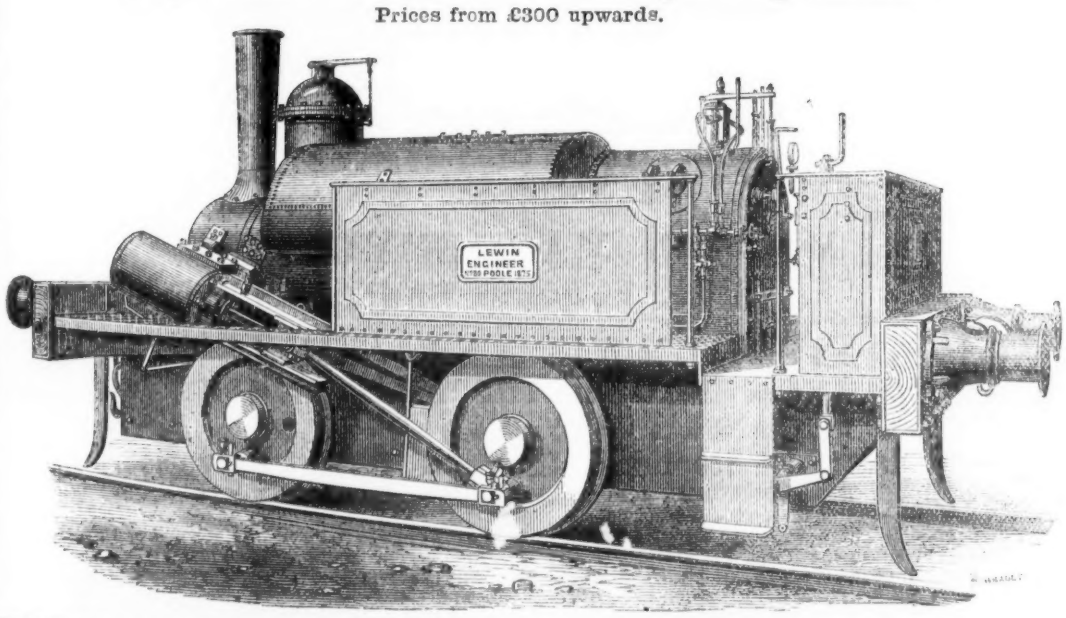
SUN FOUNDRY, LEEDS.

FURTHER PARTICULARS ON APPLICATION

LEWIN, POOLE, DORSET.

Speciality in cheap colliery and contractors' Locomotives, and very small Locomotives for replacing Horses.

Prices from £300 upwards.



PORTABLE FIXED AND VERTICAL ENGINES.

WINDING AND PUMPING GEAR.

The above represents LEWIN'S 10 by 18 DIRECT-ACTING LOCOMOTIVE, taken from a photo of one on a 4 ft. 8½ in. gauge.

WARSOP AND HILL,

HYDRAULIC AND GENERAL ENGINEERS.

SPECIALITIES.

PATENT PORTABLE POWER ROCK DRILLS.

IMPROVED

AIR COMPRESSORS AND STEAM ENGINES.

MINERS' PICKS, with interchangeable Steel Points.
Semi-portable and fixed Winding, Hauling, and Pumping Engines
HYDRAULIC WINDING ENGINES.
MINING MACHINERY; PLANTS COMPLETE.
Full particulars, with prices and photographs, on application.

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INGOTS, Nos. I or II., suitable for Pumps, Pinions, Ornamental Castings, &c..... £130 per ton
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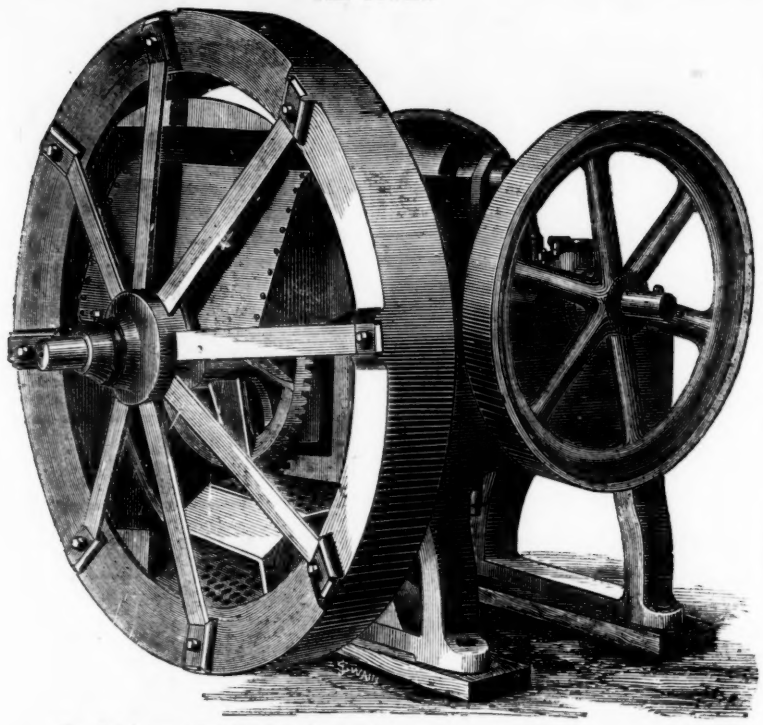

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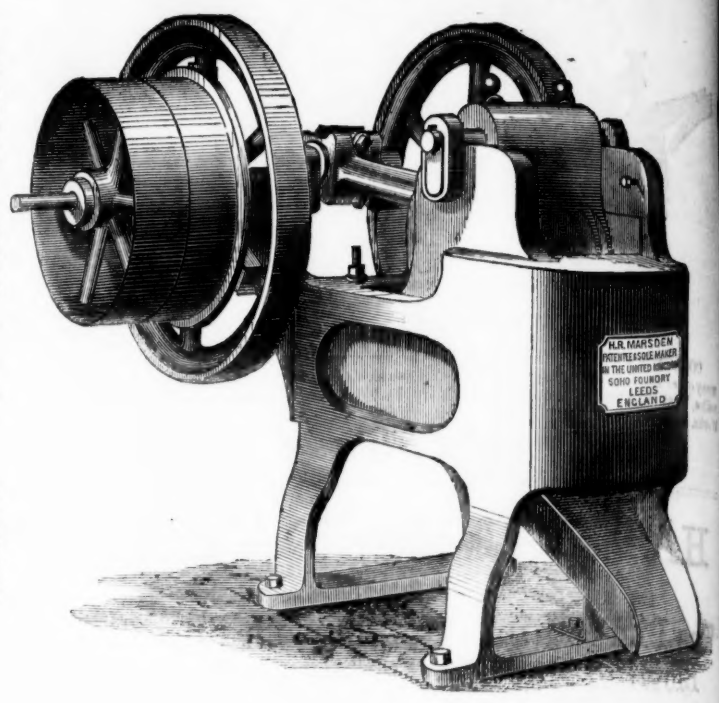

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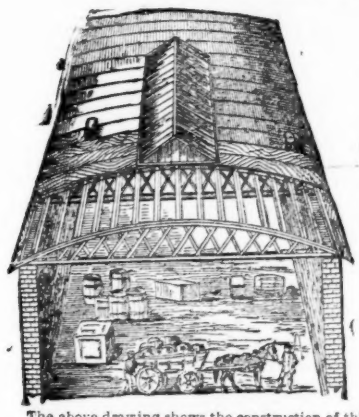

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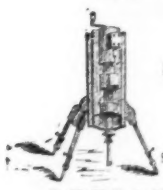

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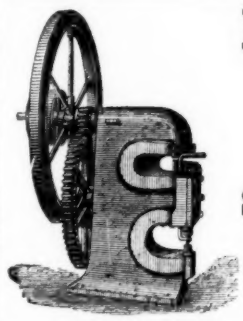

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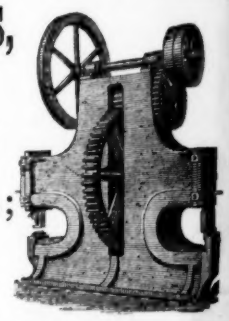

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